The
SHIPPING WORLD
AND SHIPBUILDING & MARINE ENGINEERING NEWS

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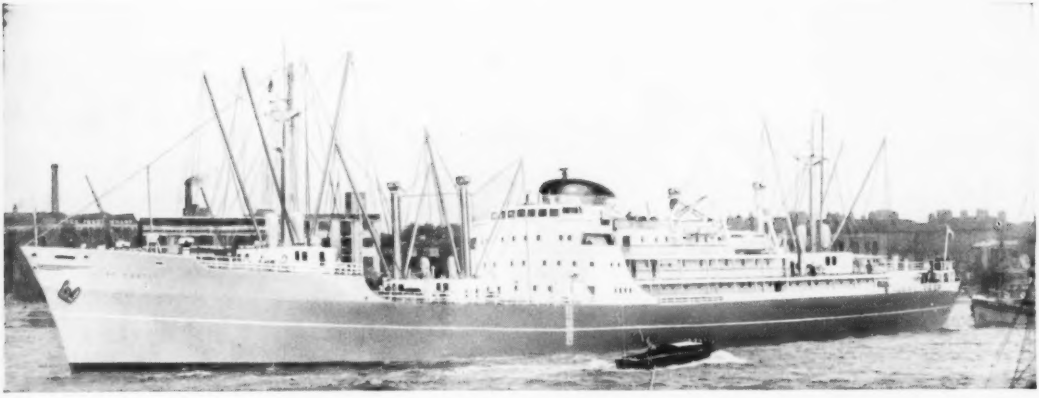
* * * *Exports and imports*



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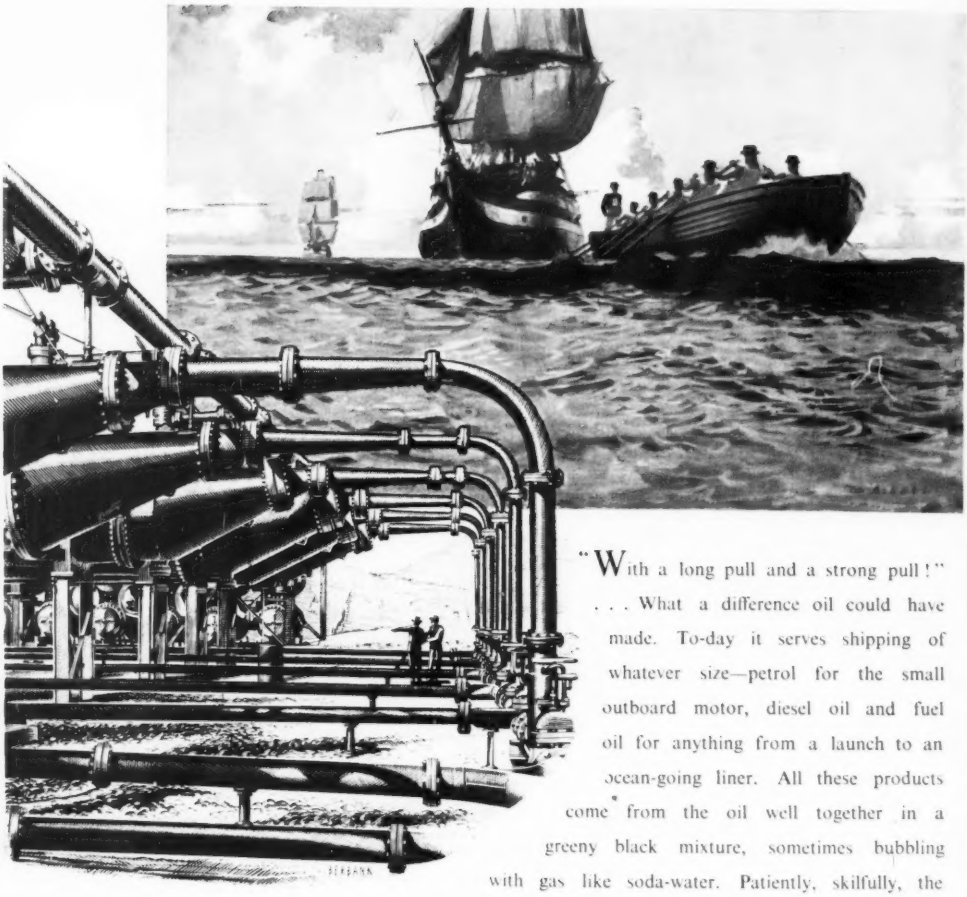

Section of plant for separating gas from crude oil

"With a long pull and a strong pull!" . . . What a difference oil could have made. To-day it serves shipping of whatever size—petrol for the small outboard motor, diesel oil and fuel oil for anything from a launch to an ocean-going liner. All these products come from the oil well together in a greeny black mixture, sometimes bubbling with gas like soda-water. Patiently, skilfully, the refiner sorts them out. The Anglo-Iranian Oil Company has a dozen refineries, spread over three continents, turning crude oil into scores of useful products. The oil formed by marine life in the distant past now returns to the sea, to be consumed in ships' boilers and engines

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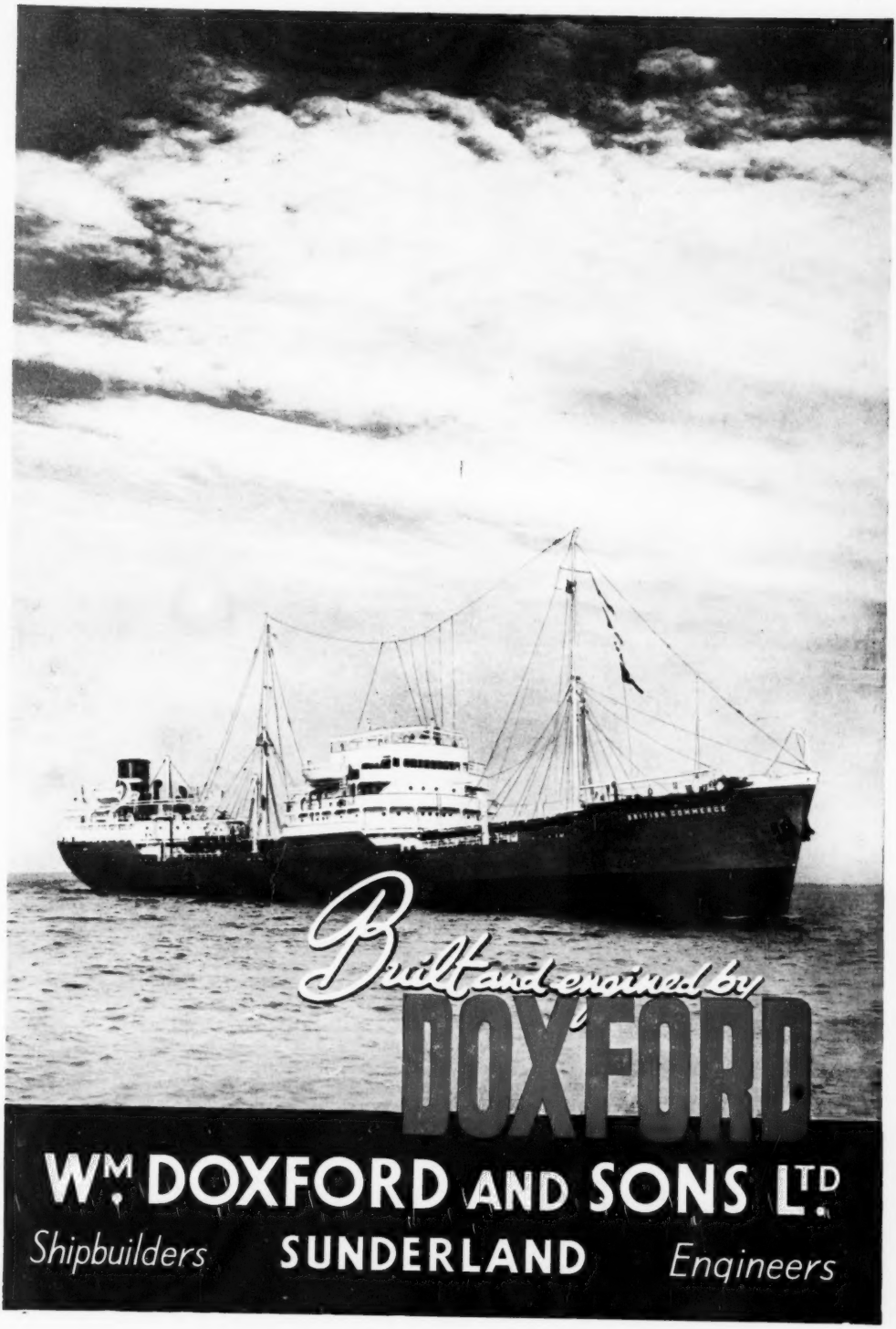
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Shipbuilders
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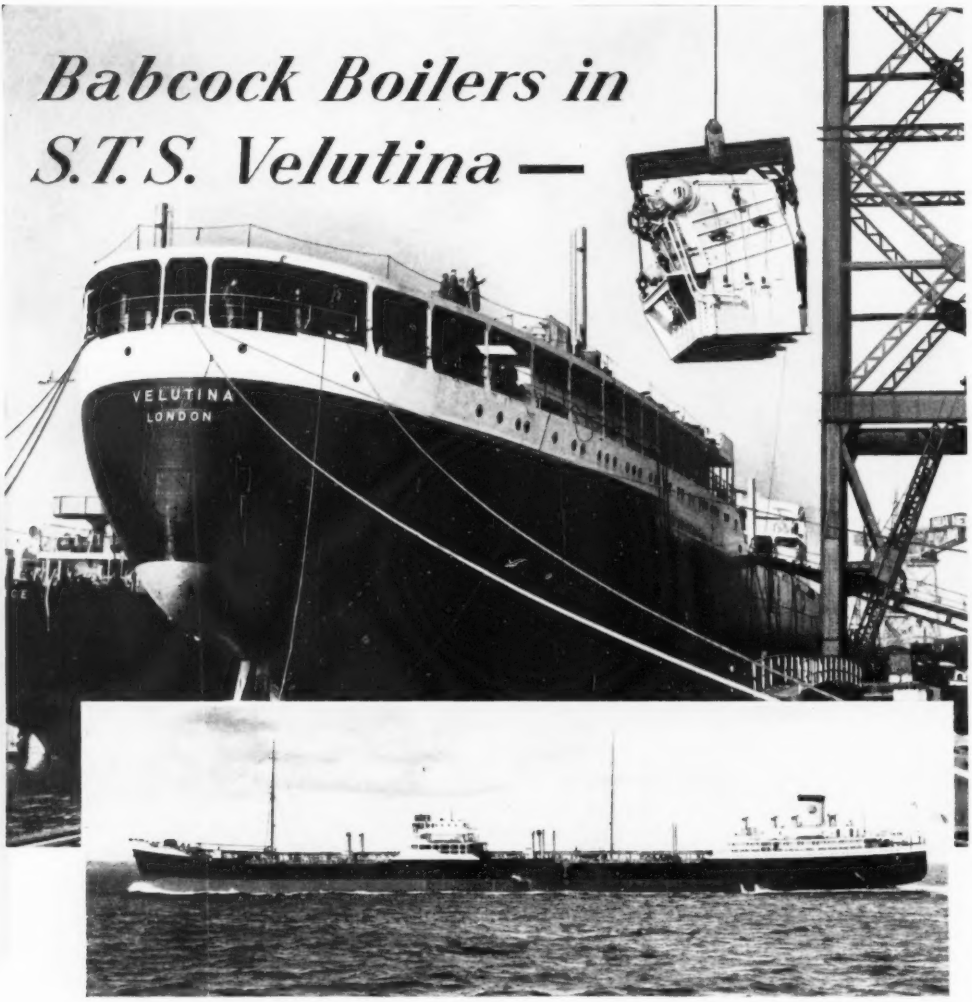
Babcock Boilers in S.T.S. Velutina —



A recent feature in the development of the Tanker Programme has been the advent of the large 28,000 tons deadweight ship. The Anglo-Saxon Petroleum Company's VELUTINA is the first of these vessels, constructed in British yards, to go into service, and is the largest oil tanker ever built in Great Britain. Built by Swan, Hunter and Wigham Richardson, Ltd., and engined by The Wallsend Slipway and Engineering Co. Ltd., she has three Babcock Marine Boilers operating at 500 lb./sq. inch and 750 F. together with appropriate de-superheating equipment to allow the main boilers to deal with cargo services.

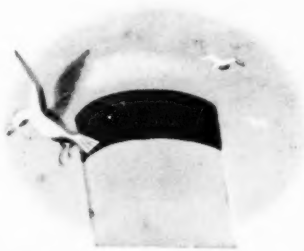
A number of similar sized vessels under construction are Babcock equipped: some with the standard header-type single-pass boiler, and others with the Babcock 2-drum Integral Furnace design.

BABCOCK & WILCOX LTD.
BABCOCK HOUSE, FARRINGDON ST., LONDON E.C.4.

H.R.H. Prince Hendrik of the Netherlands was an enthusiastic sponsor when the N.V. Stoomvaart Maatschappij "Nederland" was founded at Amsterdam in May, 1870. The "Nederland" Line is the oldest of the Dutch shipping companies established to take advantage of the Suez Canal in promoting trade between Northern Europe and the former Dutch East Indies.

S.M.N's first ship completed the voyage to Java in 40 days: the homeward run took five days longer. Later, in 1874, the Company's Annual Report mentioned that SS *Prins Hendrik*, on her maiden voyage, "surpassed all other steamers in the Northern Europe-D.E.I. trade by attaining 11½ knots and by maintaining that speed without interruption during 34 days of sailing". Today the same run is covered in 19 days by the MV *Oranje*, the "Nederland" Line's 20,000 ton flagship.

The Stoomvaart Maatschappij "Nederland" operates a fleet of 36 ships in the North and South Atlantic, Indian and Pacific oceans. Their main service is the line between Europe and Indonesia; services to the rest of the world are run in co-operation with other shipping companies.



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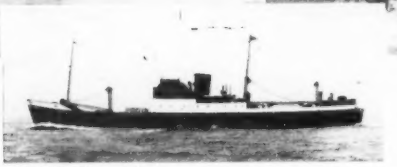

M.V. Toward

M.V. Copeland

M.V. Sanda

THE motor vessel *Pladda* is the latest edition to the Clyde Shipping Company fleet, and is the thirty-fifth vessel launched by the Caledon Company for these Owners. She is also the sixth Clyde Shipping Company vessel launched by the Company since the end of the war.

M.V. *Toward*, M.V. *Copeland* and M.V. *Sanda* are three of these vessels.

The Caledon Company build vessels of various types, including high-class cargo liners, tankers, and passenger vessels, but all have one feature in common—good workmanship and high finish.

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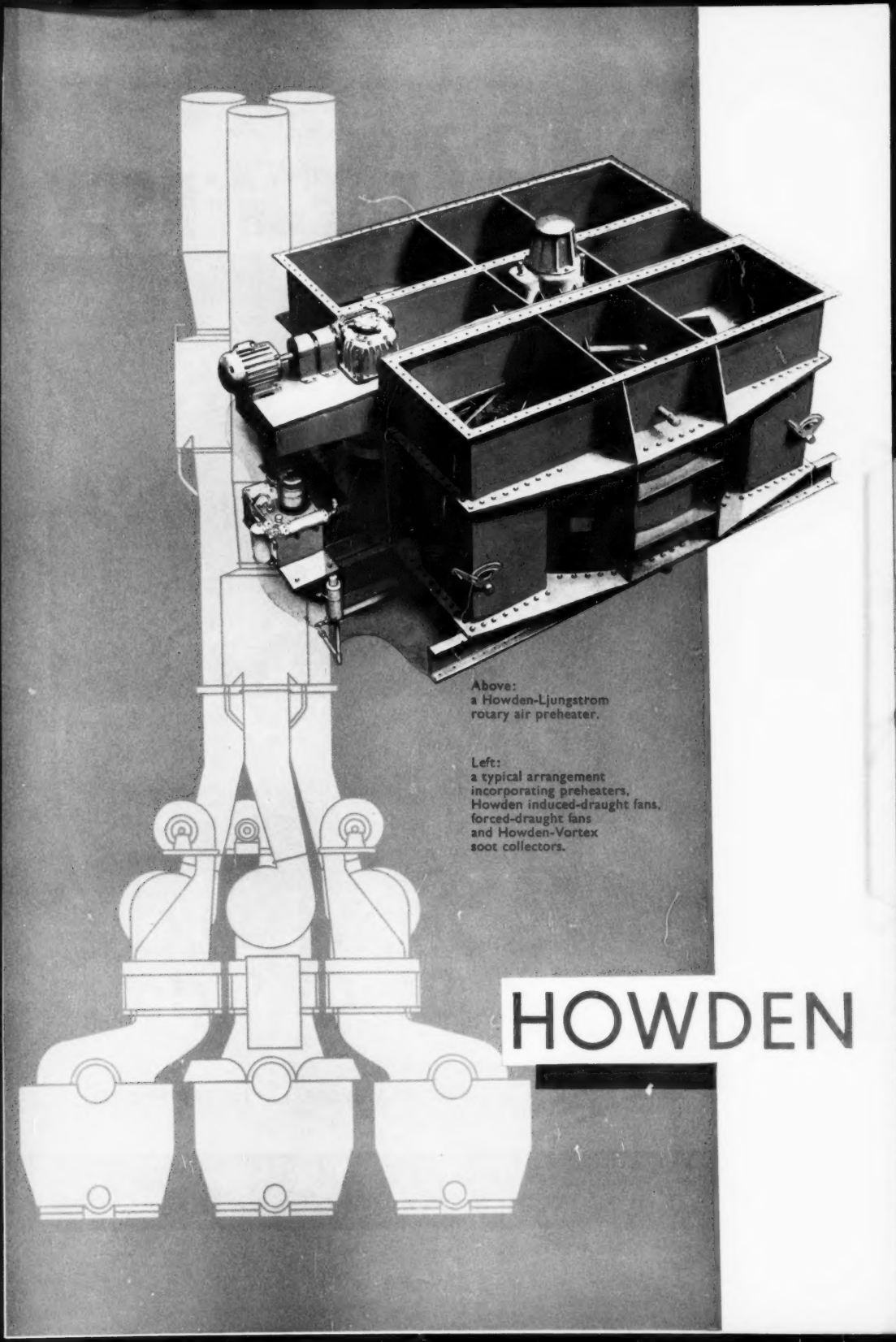

Above:
a Howden-Ljungstrom
rotary air preheater.

Left:
a typical arrangement
incorporating preheaters,
Howden induced-draught fans,
forced-draught fans
and Howden-Vortex
soot collectors.

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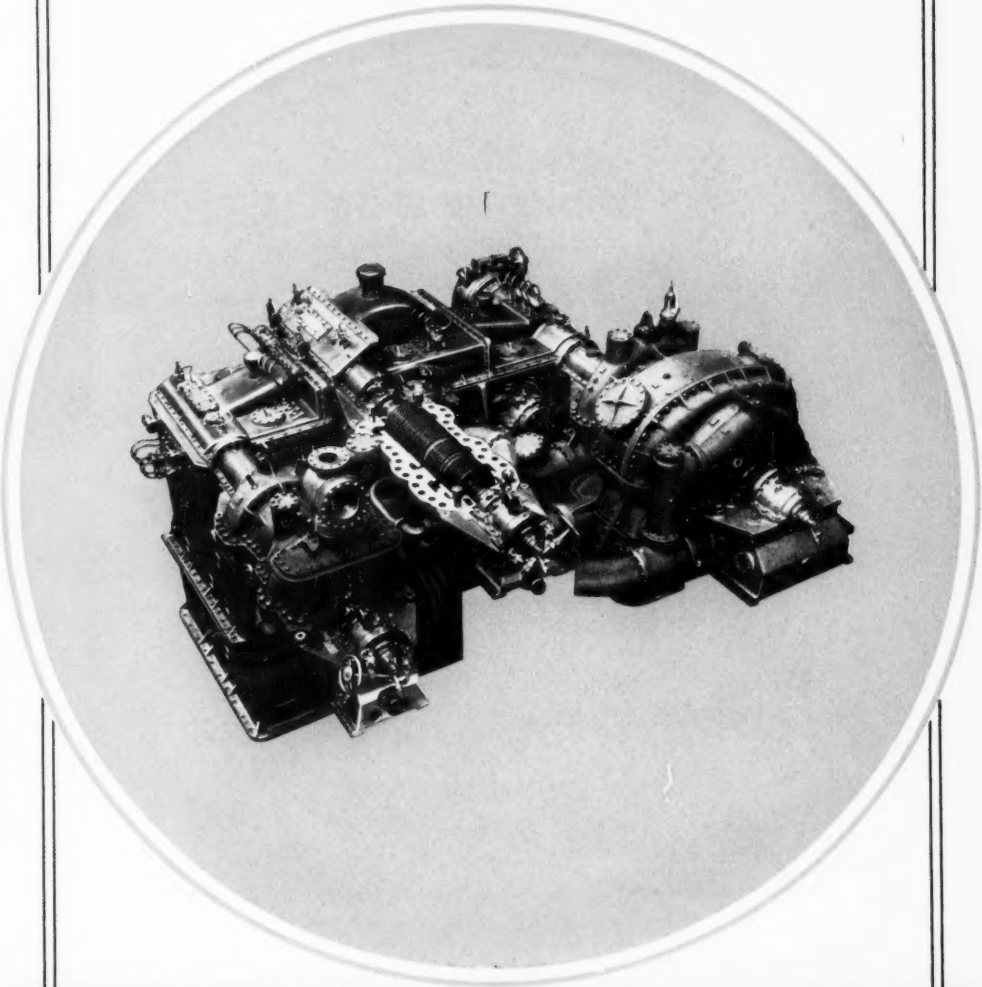

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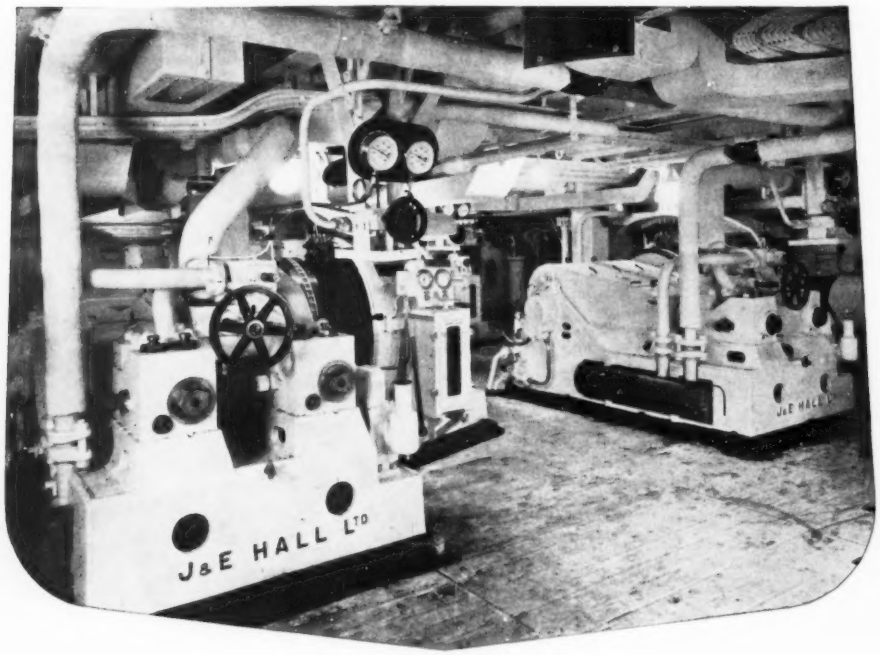

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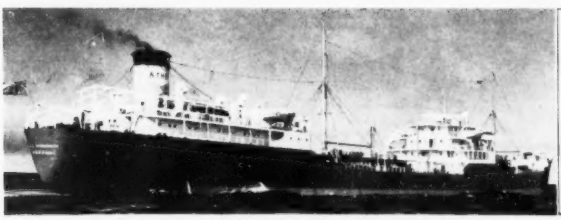

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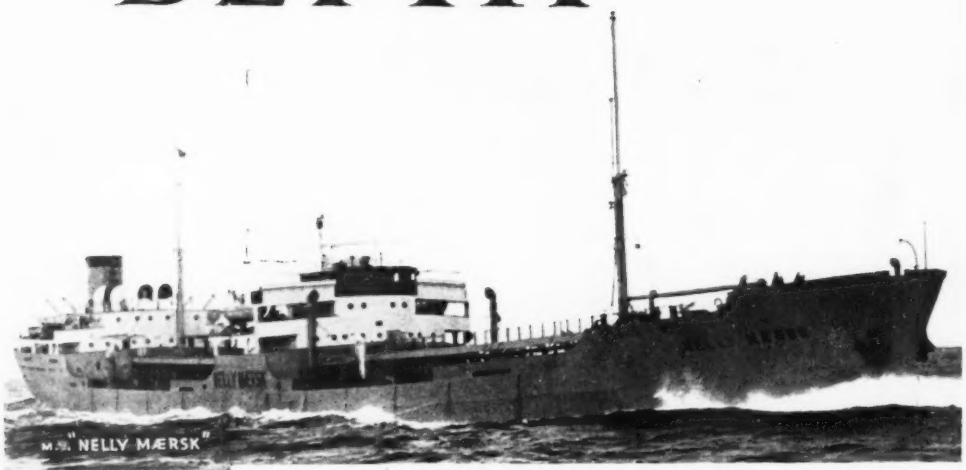

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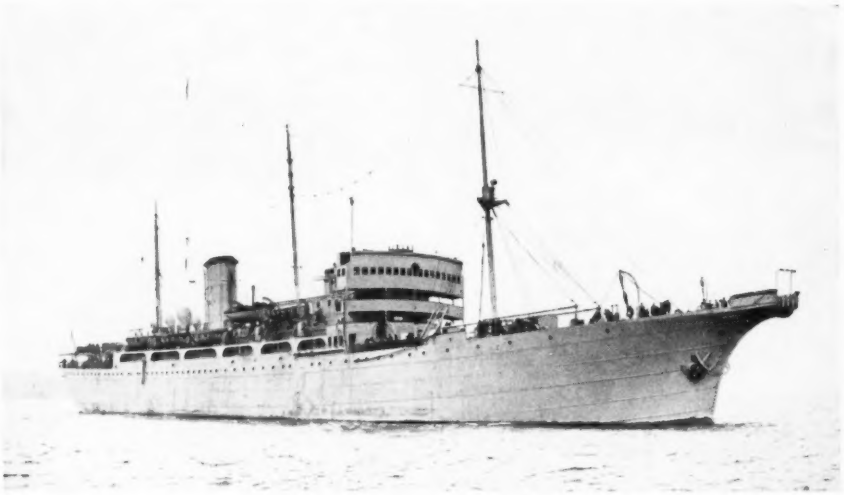

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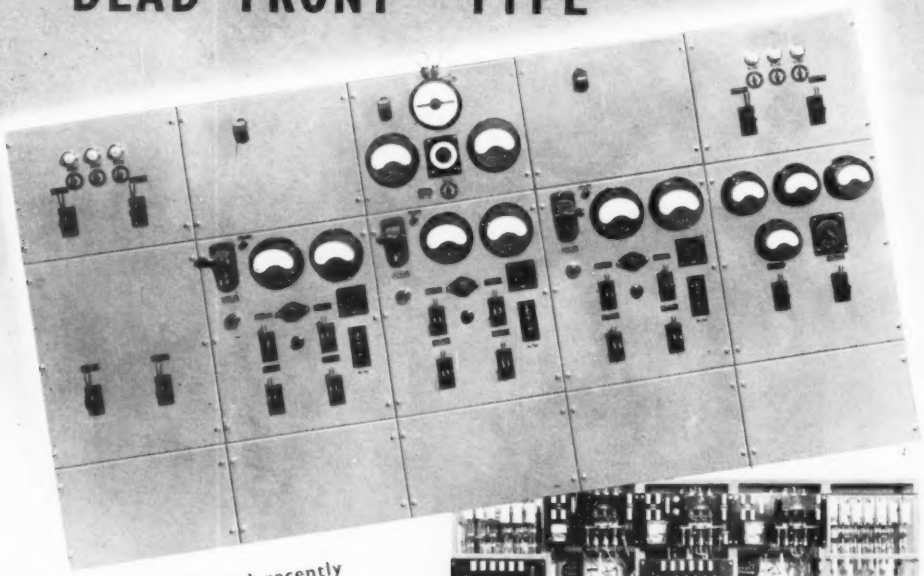

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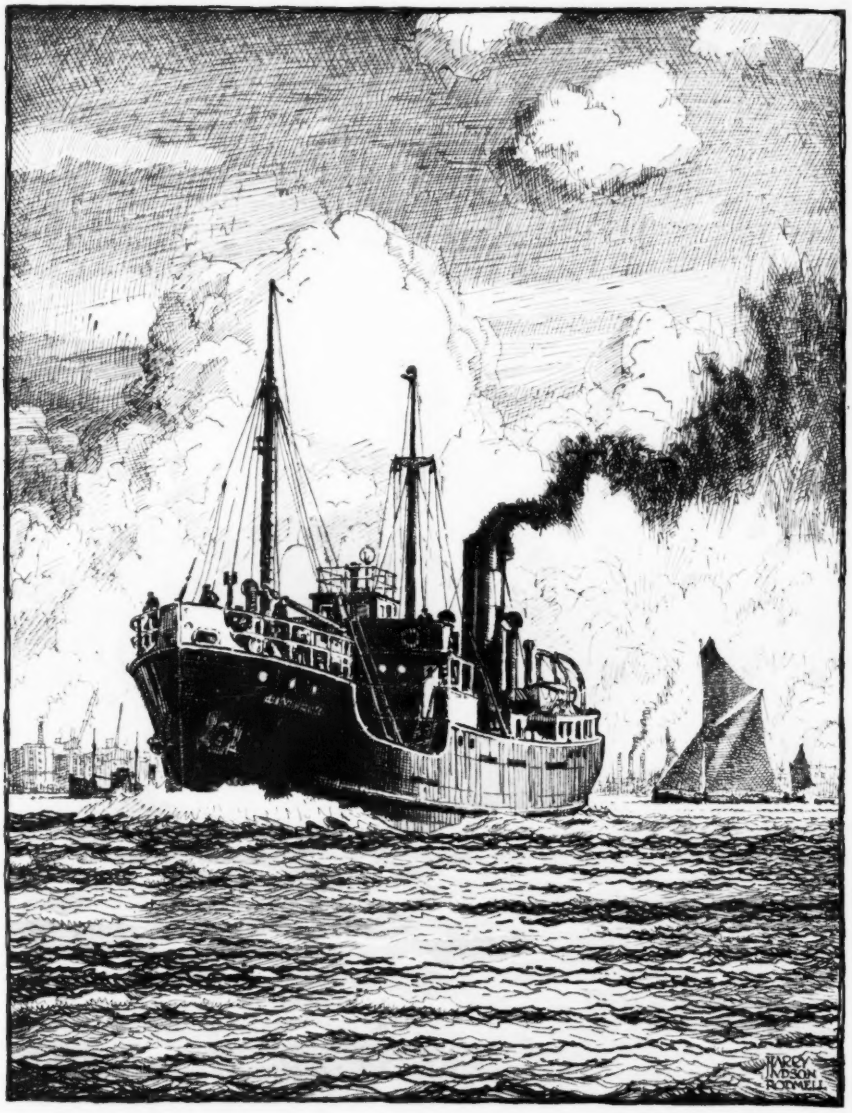

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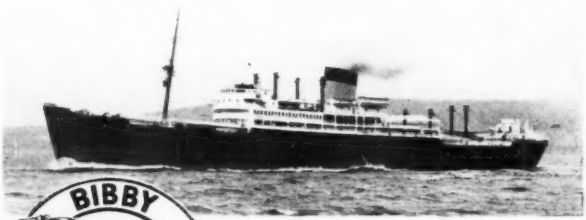

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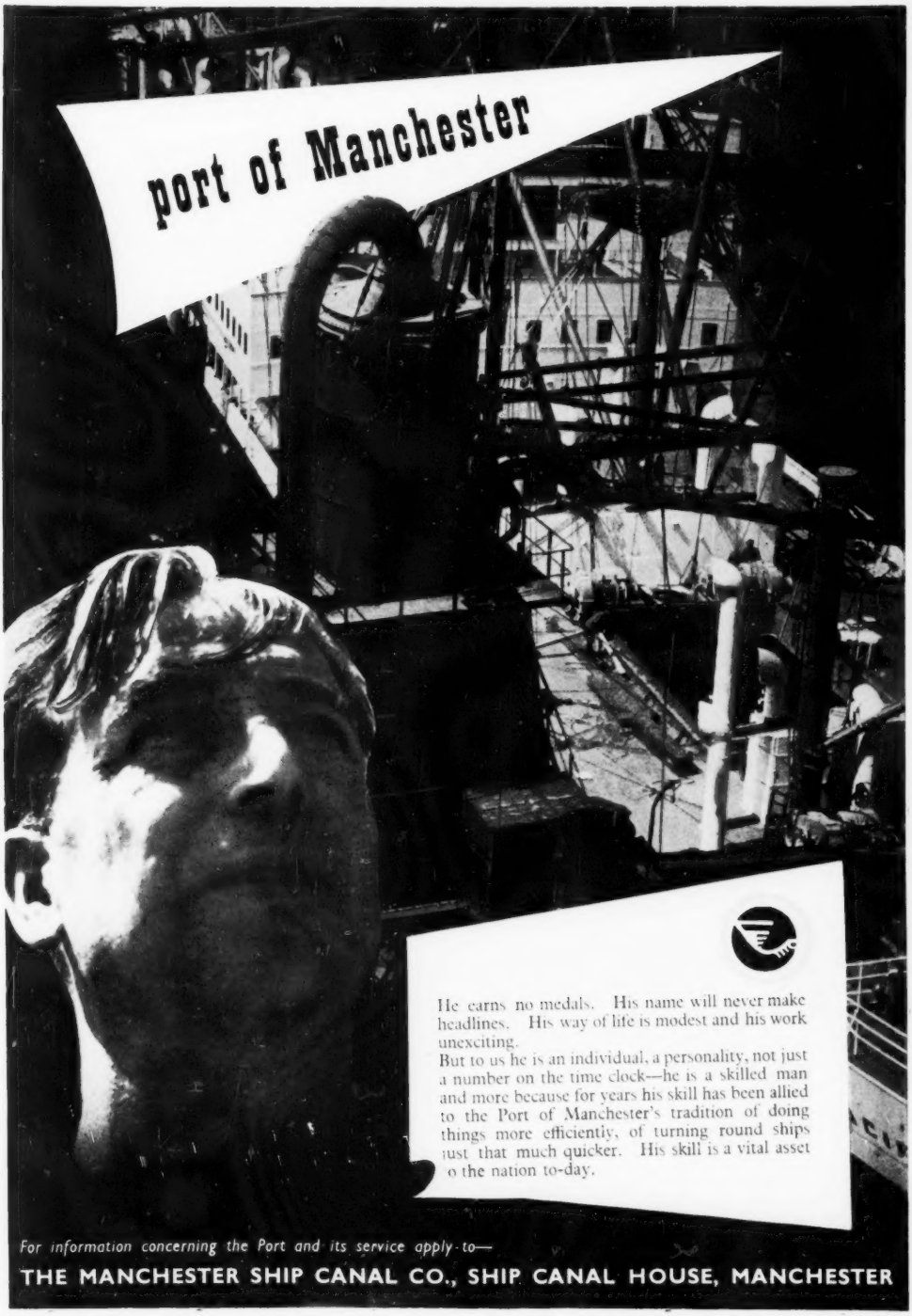
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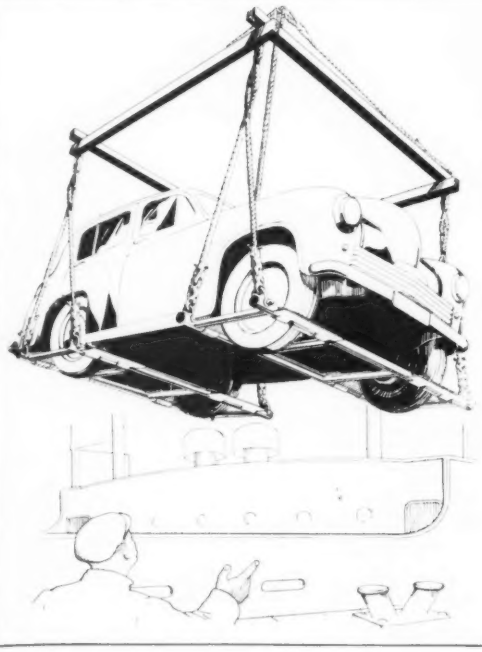

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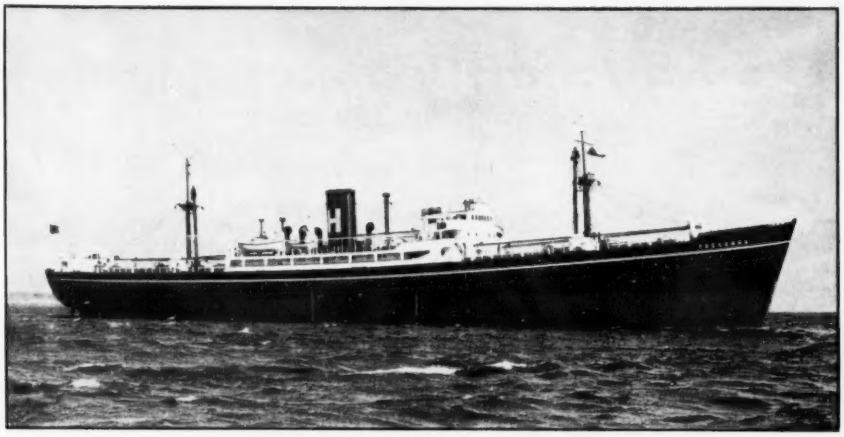

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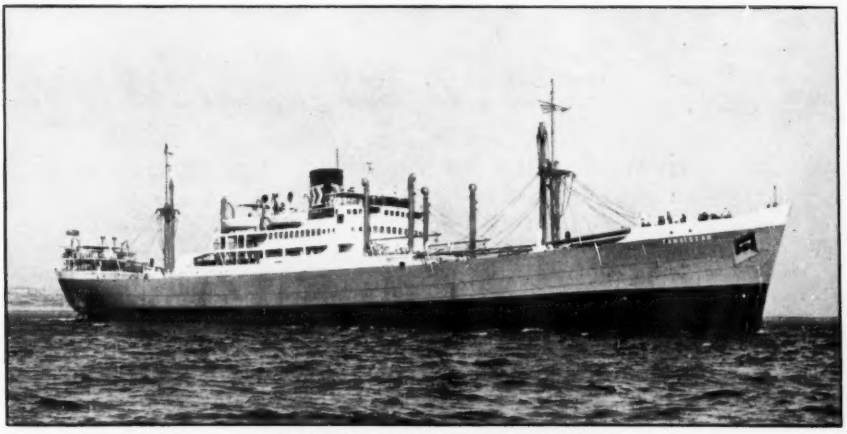

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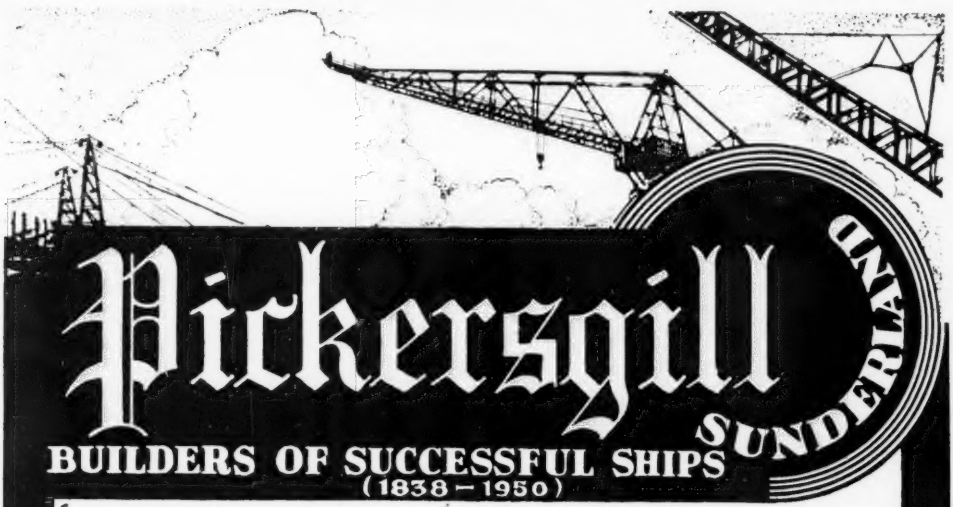

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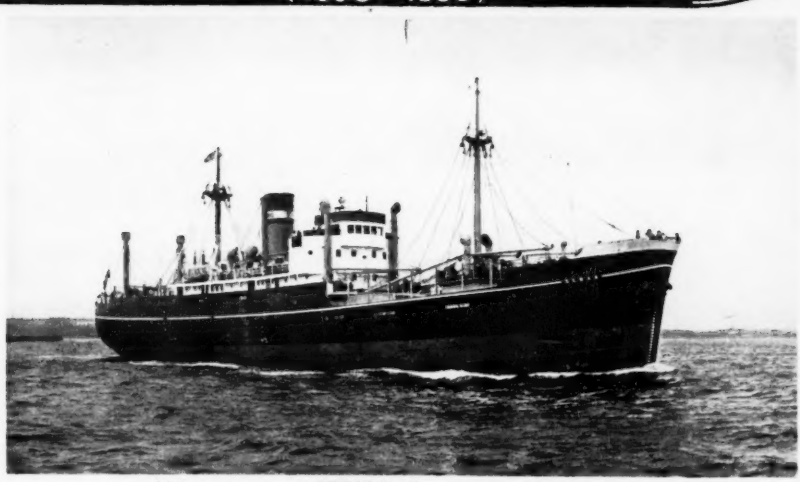

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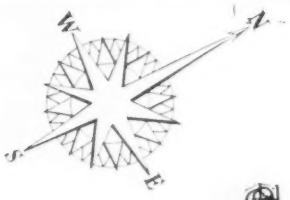

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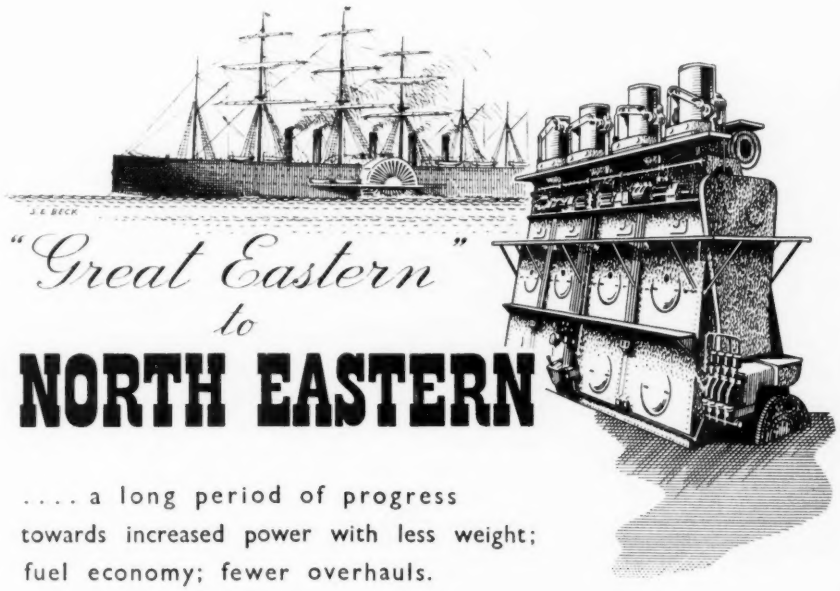

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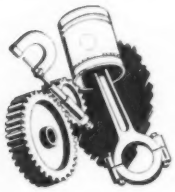

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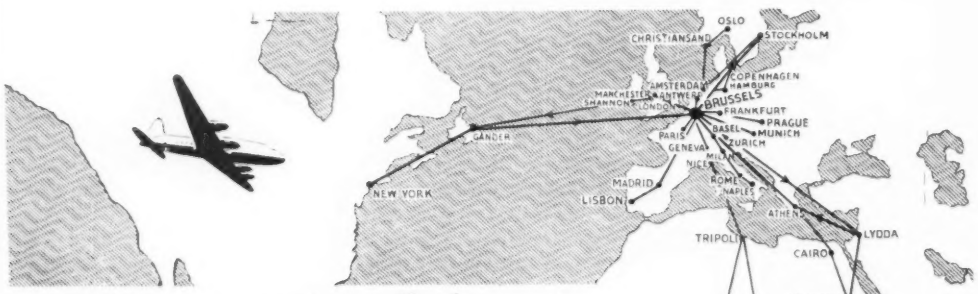

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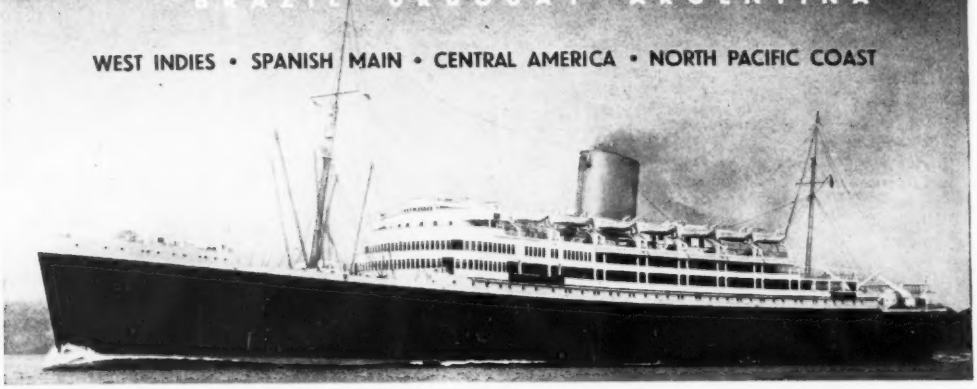

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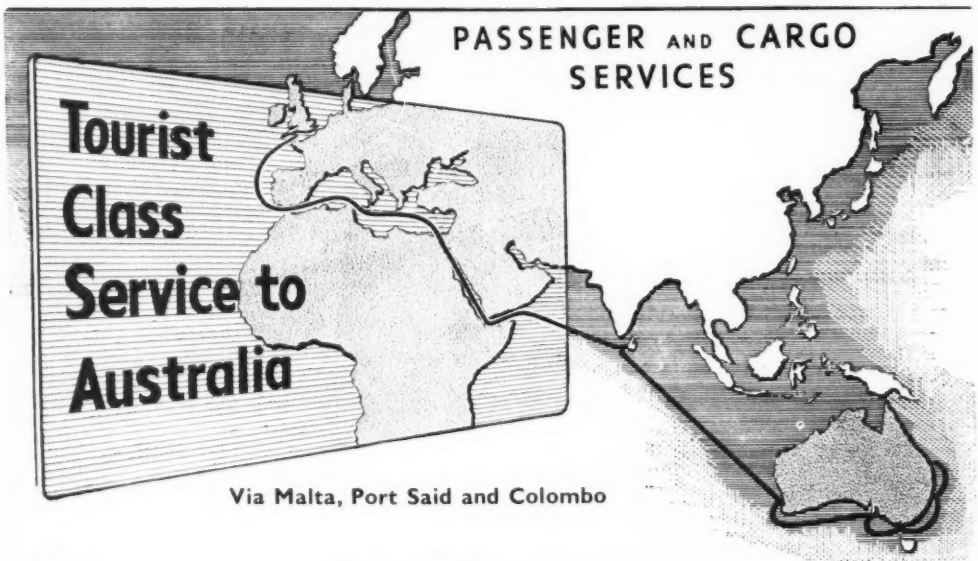

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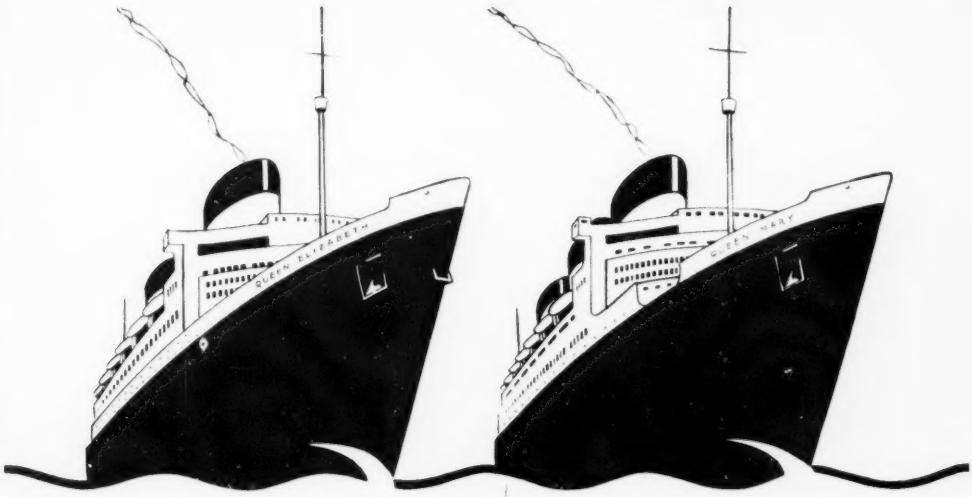

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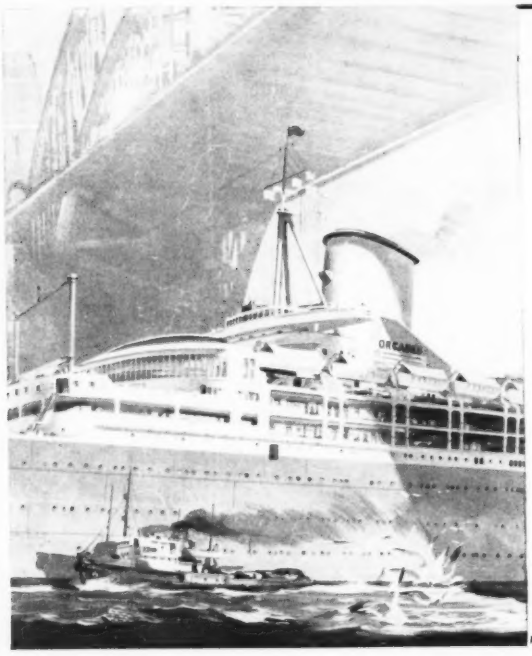

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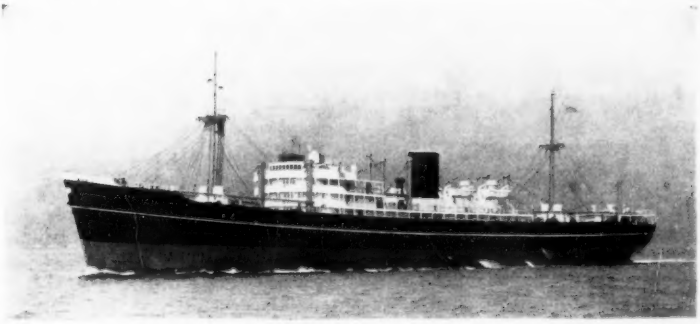

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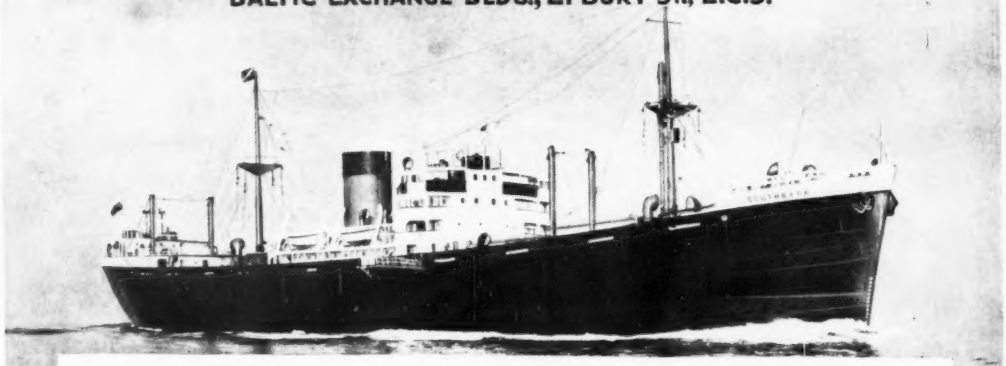

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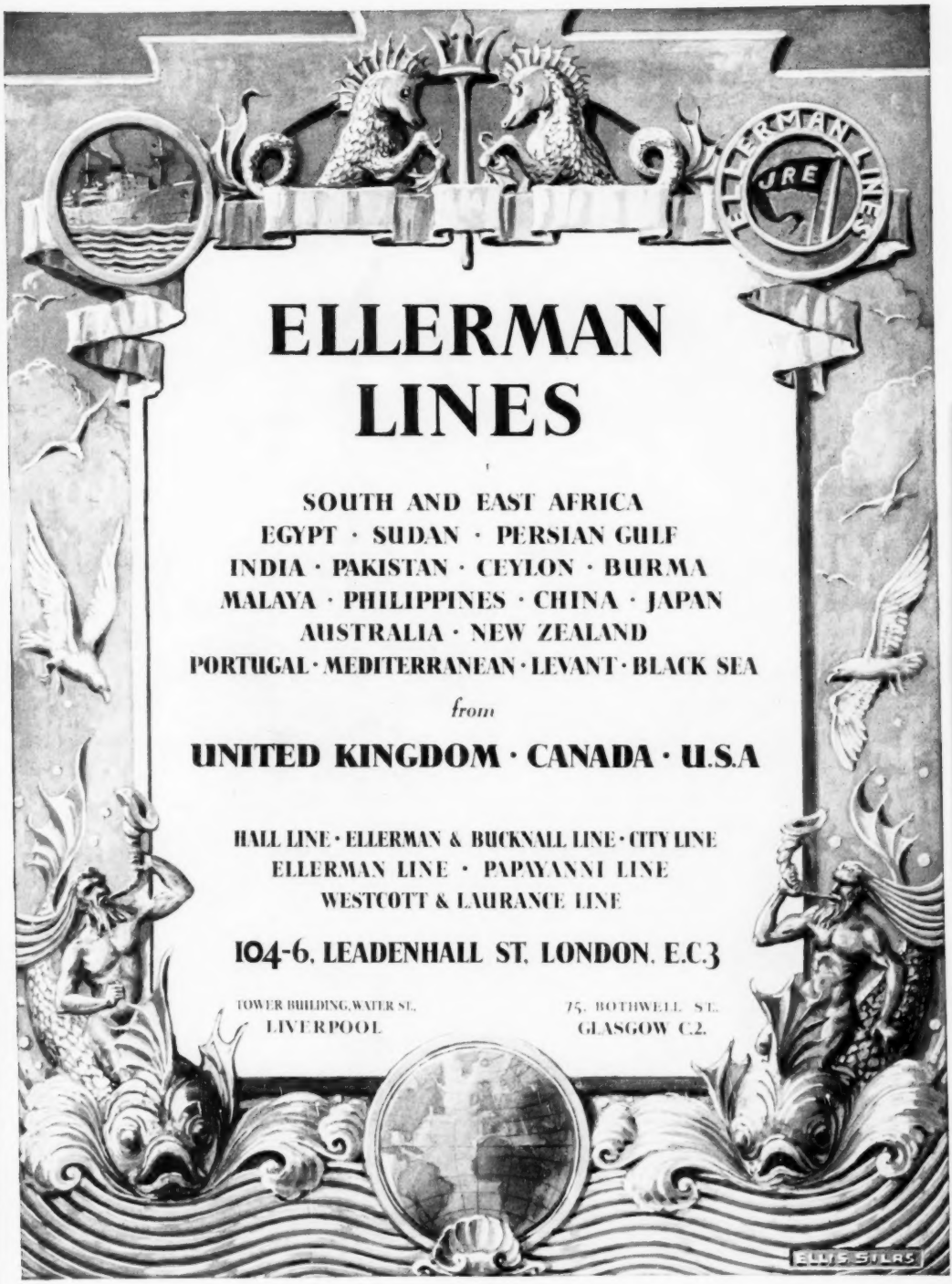
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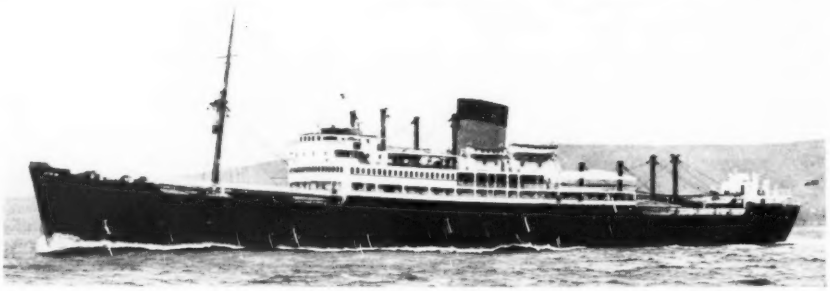

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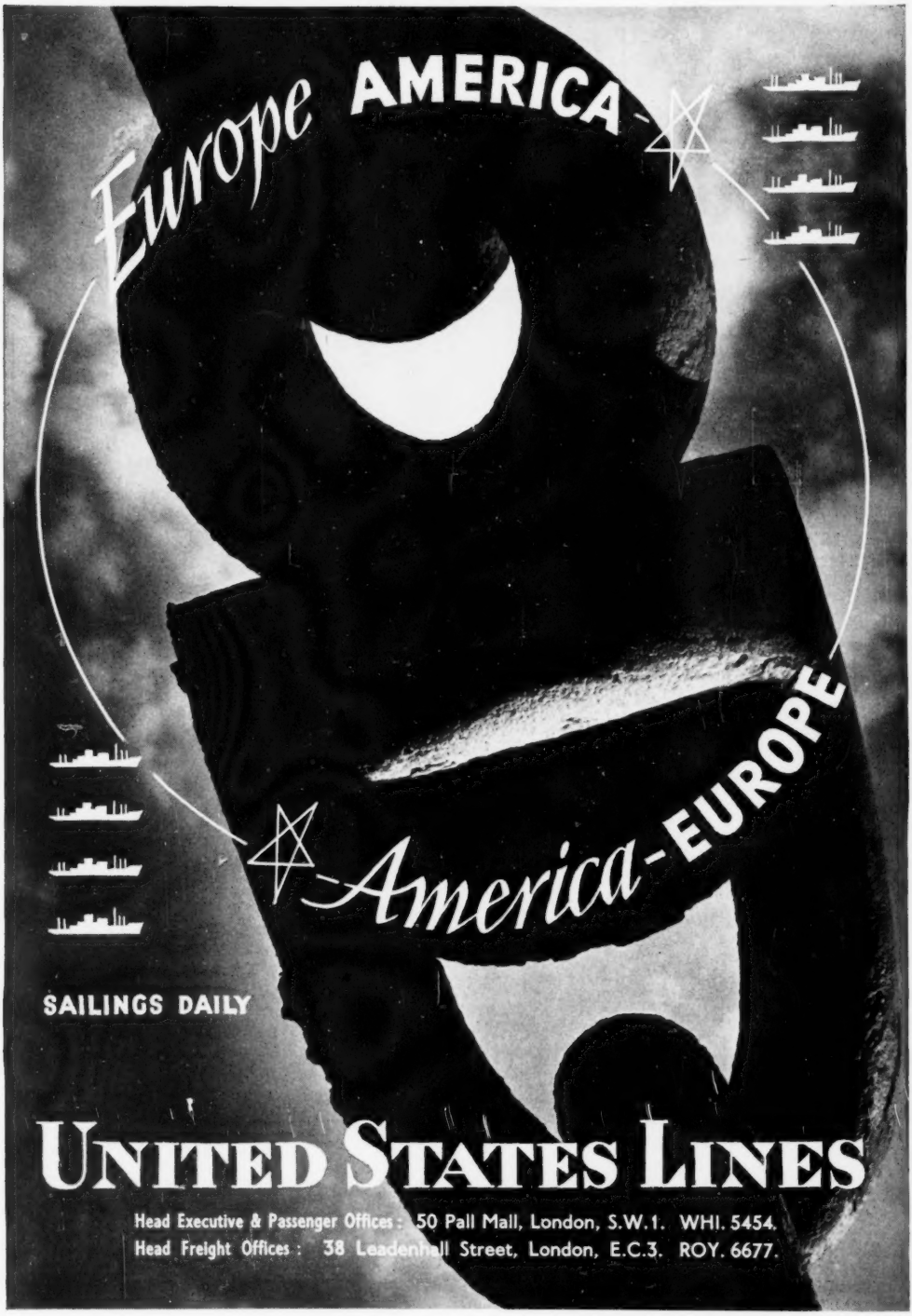
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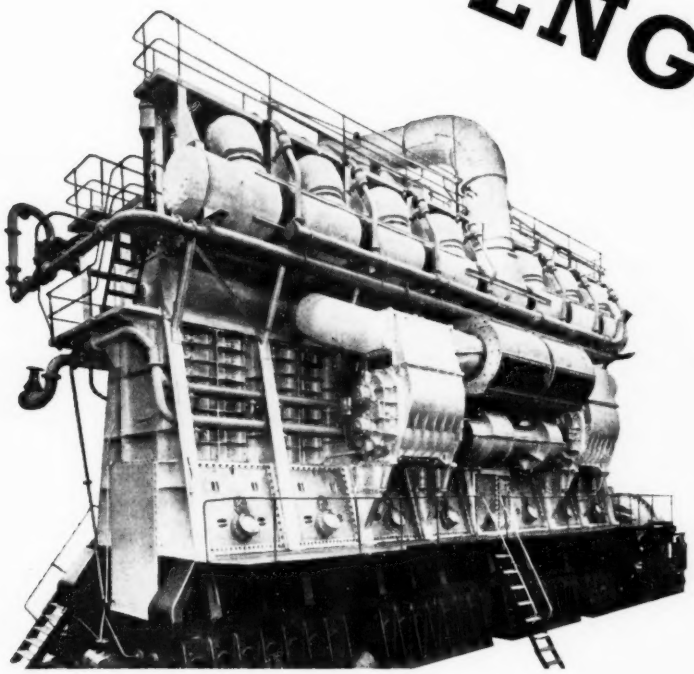

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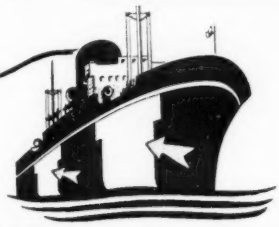

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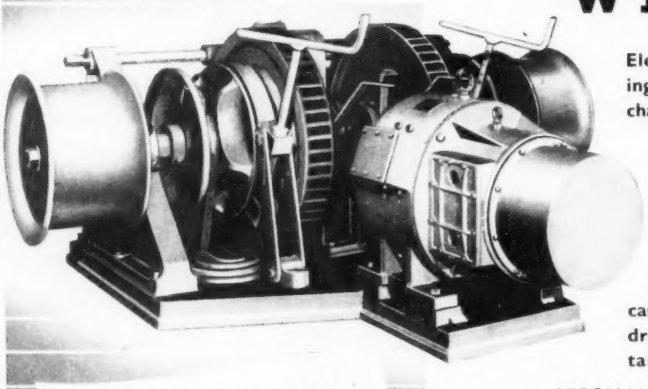

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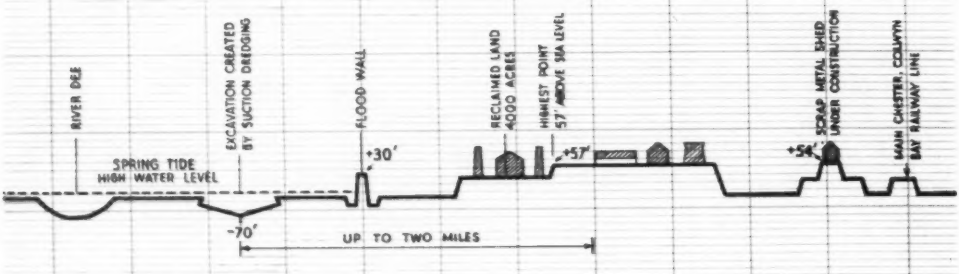

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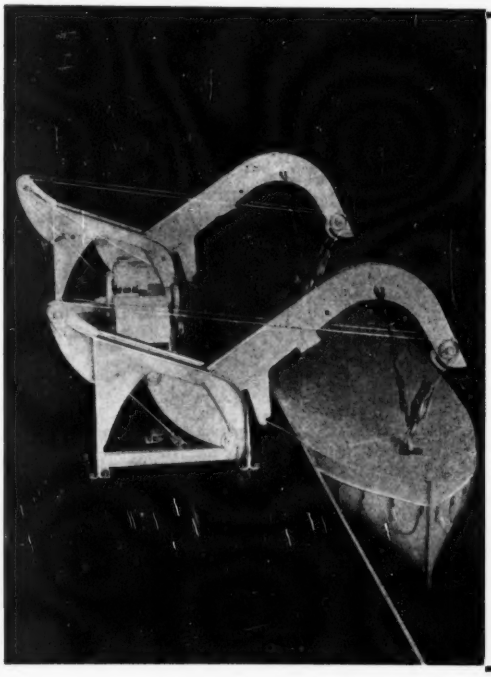

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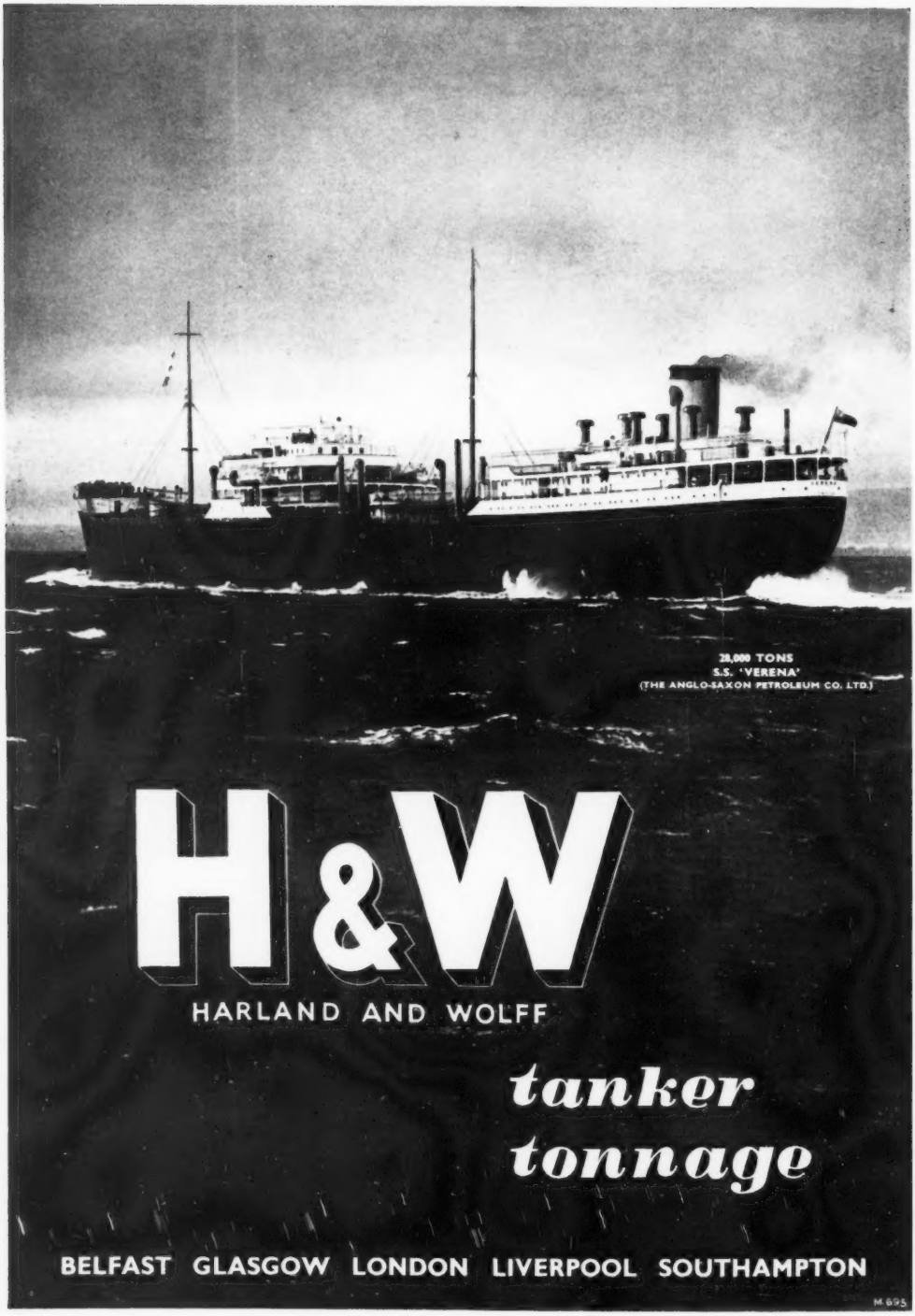
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THE SHIPPING WORLD

THE LIGHTS AND SHADES OF 1951

THOUGH we are living under unhealthy conditions economically, the immediate prospects of all the maritime industries are good, and of shipbuilding very good. Six or nine months ago it seemed probable that they would all be under the influence of a deepening depression. But, in the first place, orders were placed for oil tankers and these were followed by contracts for a number of cargo liners and, under the rearmament programme, the keels of warships of the smaller classes have been, or are being, laid down. There is the prospect of work for all craftsmen, though there is a shortage of orders for passenger liners to engage the fitting-out trades. The past year was a busy one for the shipyards, and all the industries which supply equipment, never more varied than today, were well employed. It is expected that the output for the past twelve months will reach the figure of 1,300,000 tons and the tonnage now fitting out will be little, if anything, below that figure. And next year will probably have an even better record, for the orders in the past twelve months were about three times as large as in the previous year, so that full employment, especially in the larger establishments, not only for 1951, but for twelve or eighteen months ahead, is assured. Owing to a variety of circumstances, including the movement of freights, new contracts are still being negotiated. As Mr. J. Ramsay Gebbie, president of the Shipbuilding Conference, has remarked, the employment outlook for immediately ahead and for 1952 is "set fair." The industry's total order book (tonnage building and still to be laid down) is about 3½ million tons gross, estimated to be worth at current prices from £280 million to £300 million, of which about one-third is for export.

At the moment, the shipbuilder has less cause for worry than the shipowner, for the latter has to pay the bills for new ships. As Sir W. Guy Ropner, the president of the Chamber of Shipping, points out in another column, the cost of replacing war losses twice in a generation has meant the expenditure of nearly all the depreciation and war insurance money, and owners have little left with which to finance the replacement of obsolescent ships. "Unless the Government modifies the present incidence of taxation, under which profits are taxed regardless of the fact that they are needed in the business, the British Mercantile Marine must progressively deteriorate. The money for replacement simply will not be there." The industry is being bled white by taxation, which is robbing it of its ability to provide work in the shipyards when the present orders have been completed. And shipowners have other worries besides taxation. They have kept up their courage so far, but now, as Sir Guy points out, they have to meet the considerable increase in oil bunker prices, the recent restriction on coal bunker supplies in this country, and the necessity of purchasing at higher rates abroad, with the consequent shutting out of cargo, and the continuing expense caused by delay in ports. There are two curves rising almost parallel with each other—one freight rates and the other costs. The president deals very effectively with the suggestion that the rise in freights means that shipowners are "exploiting the nation's misfortunes." Shipping is an international industry, as is shipbuilding. "The effect of trying to control freight rates of British ships would have been to place them in an unfavourable position *vis-à-vis* their foreign competitors." Foreign shipping alone would have reaped the benefit of a strong market tendency, British ships being left behind at the post, all of which has happened more than once before, as he recalls.

The whole trend of national policy in the past five years has been retrograde. Shipping is always a gamble, but today it is a gamble with the dice loaded against it owing to the three evils, high taxation, nationalised monopolies and bulk buying, with the result that gross profits are illusory. What matters is earnings on a scale which will enable ships to be operated successfully and provision to be made year by year so that when they become obsolete they can be replaced in spite of the fact that costs are two or three times as high as they were before the war. All who are engaged in the maritime industries, and particularly shipowners, have to take long views, looking forward fifteen or twenty years, whereas official planners take short views, as is illustrated by the follies committed by the bodies which are mismanaging the various basic industries placed under their control.

Current Events

International Industries

IF MINISTERS and their supporters, as well as the members of other parties, would read the annual report of Lloyd's Register which has just been published, the first for 12 years, they would realise that all the maritime industries are necessarily international and that our primacy in them is an asset of inestimable importance to our economy as a nation of islanders. This primacy is not a matter of course, but is the result of expert administration, long-term planning and research, and conservative finance, which in combination have produced a high standard of efficiency. The report of Lloyd's Register, which is signed by its secretary, Mr. P. E. Clement, shows that on June 30 last there were under construction to Lloyd's Register or to British Corporation class 543 ships with an estimated total tonnage of 2,846,000 tons gross (including 122 tankers with an aggregate of 1,245,000 ton gross); 590 sets of marine engines representing approximately 2,200,000 shaft horsepower; and

marine electrical installations of some 130,000 kilowatts capacity. In addition to this, 151 refrigerating installations for use on shipboard or ashore, totalling 11,000,000 cubic feet, and a wide variety of other land installations, were under the Society's survey at that date. Lloyd's Register has become more than ever before in the course of years, and owing latterly to the successful fusion scheme carried out under the chairmanship of Sir Ronald Garrett, who writes elsewhere in this issue, an international institution. On June 30 last the number of its exclusive surveyors was 643, of whom only 102 were stationed at headquarters in London and the remainder at the principal ports and shipbuilding and engineering areas throughout the world. The clerical staff, at home and abroad, and the printing house staff brought the total number of persons employed to 1,248. It is remarked that in the interest of efficiency, the distribution of the staff must be varied from time to time, and in the year under review three new offices were established. The Committee had to close the two offices reopened in Poland after the war and to recall the surveyors, who had been making a valuable contribution towards industrial recovery in that country. But, on the other hand, the staff in Japan is fully up to prewar strength. As the result of these changes, at June 30 last, the Society was represented at 148 ports and engineering centres. Lloyd's Register is fortunate in having a staff which is expert, loyal and hard working, those serving overseas being, in effect if not in fact, ambassadors of a country which is happily still supreme on the seas, though not as much as it was. In 1901 the proportion of world tonnage under the British flag was 44.63 per cent, in 1914 the figure was still 39.23, but today it is only 25.8 per cent owing to the progress which has been made by the British Dominions and foreign countries, in many cases as a result of various forms of flag discrimination.

Profits, Depreciation and Taxation

THE MAJORITY of trade union leaders know nothing of finance and, as their speeches reveal, could not care less. They have little idea as to what the word "profit" means, and would be embarrassed if they were asked to define it, while as to depreciation, it might be imagined from their statements that ships, buildings and machinery last for ever and need never be replaced. If they would read the *Financial Times* they would learn that of the gross profits in the past year of £53,125,000 for 55 shipping companies, the reports of which have been analysed by our contemporary, no less a sum than £22,798,000 was set aside for depreciation, and taxation took £14,492,000, the capital and revenue reserves amounting to £222,864,000. That is a very different picture to that with which the rank and file of Socialists are only too familiar. Then, turning to shipbuilding, the figures for 23 companies are profits £16,163,000, depreciation £1,935,000 and taxation £7,515,000, with capital and revenue reserves standing at £36,171,000. That, again, is a very different story from that which the average worker has had told to him. Our contemporary does not separate engineering into its various groups, but, taking all engineering companies, it reveals that the year's accounts of 320 companies show profits of £118,540,000, depreciation £16,087,000 and taxation £52,007,000, the capital and revenue reserves coming to £227,646,000. It might save much misunderstanding and defeat agitators if the chairmen of companies engaged in the wide range of maritime industries were to make a point of breaking down their accounts so as to show how small a part of the profits goes into the shareholders' pockets. Such simple statements, if exhibited in shipyards, engine shops and factories, could not fail to have its effect on the workers, who are so often misled.

Masters' Pay

IN the *Merchant Navy Journal*, Mr. Alfred Wilson, the general secretary of the Mercantile Marine Service Association, discusses temperately and sensibly the matter of the pay of masters. In his opinion, the whole wages structure has become unbalanced and it is time to seek for an adjustment. He suggests that there are two courses open to the Association—either to press for an upward revision of the present agreed minimum or to ask shipowners to grant a percentage increase on the present rate of pay. Mr. Wilson remarks that for some time now shipowners have been handicapped by a shortage of junior officers. Substantially improved pay and conditions appear to have failed in persuading certificated men to continue at sea and the position shows little sign of improvement. "Make the master's job thoroughly attractive and we feel that officers will be induced to stay at sea. Unless this is done, the British Merchant Navy may well fall into decline through lack of certificated masters and officers." Mr. Wilson remarks that at the present time it is unquestionably the senior men who are holding the Service together and enabling the ships to get about. "The thought is permissible, what will happen when these seniors retire on age grounds? Will there be sufficient seagoing certificated officers to replace them? Here is a problem that, in a few years, may well become acute. . . . The withdrawal of so many junior officers from the sea, in spite of their own improved pay and conditions, is plainly a warning as to the inadequate remuneration of those filling the top berths."

Trends in Ship Construction

A VARIETY of causes have contributed to the steady increase in the average size of ships since the war, but perhaps the most noticeable example of this trend is found in oil tankers. The standard 12,000 tons deadweight tanker so common before the war has been replaced by a 16,000 to 18,000 tons d.w. class, and many larger ships have been built. As shown in the annual report of Lloyd's Register, the latter fall mainly into two groups the 24,000 tons d.w. having a length of about 560 ft., and the 28,000 tons d.w. with a length of 600 ft.—although tankers of 30,000 tons d.w. are also under construction and tankers of even larger capacities are contemplated. One of the most predominant features of recent tonnage has been the large proportion of cargo liners and their steadily increasing speeds. The 16 to 18 knots cargo liner is not uncommon and higher speeds have been adopted in certain Scandinavian ships. Of the new tramp type ships, the shelterdeck design has been adopted to the almost complete exclusion of the poop, bridge and forecastle type. Higher speeds are also being demanded for these vessels, although the rate of increase is naturally slower than with cargo liners. To obtain larger cubic capacity and low tonnage under the existing regulations, there is a marked tendency to increase the height of the tweendeck in shelterdeckers, and there are signs that the ballast capacity of cargo ships is rising. Some indication of the demand for refrigerated ships is shown by the fact that 85 ships completed during the year were fitted with refrigerating plant built and installed under the supervision of Lloyd's Register. There is a general trend where refrigerated cargo space is concerned to provide for a greater number of services and to design plants for a greater range of duties, while there is, of course, an increasing demand for installations capable of maintaining zero and sub-zero temperatures.

Increase in Geared Steam Turbine Installations

ALTHOUGH there has been comparatively little change in the relative popularity of steam and oil engines for low and medium powered ships, the postwar trend continues in the increasing use of geared steam turbine installations, especially for powers in excess of 8,000 s.h.p. where twin-screw oil engine installations were formerly employed. Without doubt, one of the main factors affecting the choice of geared turbines has been the great advance made in gear cutting technique.

which allows increased tooth loading and pitch line speeds. This has enabled smaller and more efficient turbines to be used, running at higher speeds. Double reduction gearing has gained favour, due not only to the improved machine tools available for gear cutting, but also to improved design producing better alignment of the gears. This undoubtedly offers an advantage in reconciling the high blade-speed necessary for good thermal efficiency in the turbine with the comparatively low propeller speed required for ship propulsion. Still retaining its popularity, the Scotch boiler has recently featured many improvements in such details as safety valves and boiler mountings, and in methods of construction involving the use of welding. Of watertube boilers, a few of the forced circulation type were installed during the year, but the established type of natural circulation watertube boiler has proved to be in greater demand, with the addition, in some cases, of controlled superheat. It is perhaps inevitable that it should be asked whether 1951 will see any further progress towards the adoption of the gas turbine for marine propulsion, but, as the annual report cautions, there are still a number of serious technical problems to be overcome before the gas turbine can achieve any major advantage over the reciprocating oil engine.

Port Congestion

FROM all over the world reports are still coming in of congestion in ports, sometimes from inadequacy of cargo-handling facilities and sometimes as a result of labour strikes. At the end of last year, the Baltic & International Maritime Conference issued a special circular directing attention to the state of congestion which existed in certain ports, ranging from Australia and the Argentine, to Egypt, Nigeria and Portuguese East Africa. As far as Lourenco Marques is concerned, conditions for loading general cargo are good, but so many ships arrived with timber in December that a shortage of lighters was expected to limit discharging to 90 standards per ship per day. Unfortunately, the United Kingdom figures in this list with a particularly bad example of delay in port. A vessel of about 1,300 tons deadweight was ready to begin loading coke at Beckton, on the Thames, on December 21, but loading was delayed because of congestion. No work was done during the Christmas holidays and on December 27 the owners were advised that no loading berth would be available before January 10, and one or two days, of course, will be required for loading. The cargo was fixed to be loaded "in regular turn as customary," a stipulation against which owners have been warned many times by the Conference and which, in this example, is bound to lead to heavy, unexpected expenses. The Conference states, too, that every winter there appears to be the same trouble at Beckton. These current examples of delays in port, though perhaps small incidents in themselves, build up into a great worldwide total of delay and congestion, not only adding to the cost of sea transport, but in themselves increasing the upward trend of freight rates by reducing the amount of tonnage available for urgently required defence and other cargoes.

Conditions at Beira

THE MEASURES which have been announced to relieve the congestion in the port of Beira are designed to make the traffic fit the capacity of the port. They are, however, only of a temporary nature, for the improvement scheme for the port and its railways which was detailed a couple of months ago will in time fit Beira to handle all the traffic that may be expected. The hinterland of Beira includes both the Rhodesias, and the growing development of these is, no doubt, one reason for the overloading of the port's facilities. Matters came to a head early last year, and in February the South-East African Outward Freight Conference was forced to put a surcharge of 60 per cent on freight rates to the port. In consideration of the measures now taken, they have agreed to remove this surcharge for a trial period. The measures comprise the introduction by the Portuguese Government of revised regulations for the order of berthing and handling ships at Beira, and the control of the flow of traffic through the port to ensure that it never exceeds the limits of capacity. This latter is to be undertaken by the Government of Southern Rhodesia, in consultation with the Governments of Mozambique and Northern Rhodesia, and a special secretariat, representative of the various interests involved, including shipping, is to be set up at Salisbury, Southern Rhodesia, for the purpose. The quantity of cargo shipped in any one vessel will thus be subject to control, and it will be necessary for shippers to make specific bookings for cargo to and from Beira. If it were not only a temporary measure, restriction on trade of this sort would not be desirable. In the circumstances, however, it is inevitable. The development work at the port is being financed by E.C.A. to the extent of nearly a million dollars and counterpart funds of 1½ million Dutch guilders, while some of the work is being undertaken by a special Portuguese company formed by a Dutch firm. With this backing the work should go forward quickly.

Insurance in 1951

IN 1951 the cost of marine insurance to shipowners will, in many cases, be increased compared with 1950. In many respects insurance costs will be higher than at any time since the end of hostilities in Europe, when the Joint Hull Understanding was revised so as to afford substantial reductions in hull premiums; since then revisions have favoured shipowners in many respects, until the revision of last October. That revision, which will have the general effect of increasing premiums, will not have any material effect until those insurances starting with the new year have come into force, because while, under a market agreement, shipowners cannot renew their insurances until three months prior to the first expiry date under the current contract, it is the custom to renew insurances as soon as is possible under this agreement, so that risks renewed in October and after, will, as a general rule, begin in January and the later months of the year. Even under the revised Understanding, shipowners who can show a credit balance of premiums over claims amounting to 40 per cent or more over the last three years, can still renew their insurances without increase in premium. Where, however, the credit balance is less than 40 per cent, the revised Understanding requires, except in the lowest credit balance brackets, heavier increases in premium. These increases are avowedly meant to offset the increased cost of claims due to the devaluation of the £ and the rising costs engendered of the rearmament programme. As devaluation took place in September 1949, and since then for over a year underwriters have continued to transact hull business without any increase in premium other than that required "on record" by the Understanding of March, 1949, it cannot be said that the present increase is untimely. Even last September underwriters had not felt the full effect of devaluation, but that effect is latent in the numerous claims which have been incurred on policies current in September, 1949, and subsequently, and will make itself felt as and when those claims come to be settled.

"THE SHIPPING WORLD YEAR BOOK & WHO'S WHO"

There are still available a small number of copies of the latest edition (1950-51) of THE SHIPPING WORLD YEAR BOOK & WHO'S WHO. This book not only contains classified world directories of shipowners, shipbuilders, shiprepairers, marine engine builders and towing and salvage contractors, but the Who's Who section, which has been considerably expanded, now contains biographical particulars of nearly 1,100 leaders in the marine and allied industries. Obtainable from THE SHIPPING WORLD, LTD., 1 Arundel Street, London, W.C.2. Price 25s.

Annual Survey of the Maritime Industries

A Message from the Minister of Transport

THE past year was notable for the fact that for the first time since we started to replace war losses this country was able to put on the high seas a merchant fleet comparable in size, if not in balance, to that of 1939. This reconstituted fleet represented a very large capital investment—how large may be judged from the fact that the outlay on new vessels since 1945 is estimated at £300,000,000, and an expenditure of that order in a business dependent on the fluctuations of international trade calls for more than ordinary courage.

It is therefore a matter for congratulation that this milestone in the history of the British mercantile marine coincided with an increased demand for shipping throughout the world. The net earnings of our fleet in foreign exchange during the first half of the year appear to have been well above the high level reached in 1949, and it is noteworthy that this increase was before the demands arising directly or indirectly from the Korean War had begun to take effect. Thus the policy of restoring our fleet to prewar strength is already paying the country handsome dividends in the form of foreign currencies.

Included in the earnings mentioned are those from passenger fares, an item which I hope to see further increased during the present year, when accommodation on most routes should be greater than at any time since the war. The demand for passages is likely to be increased during the summer months by the many thousands of visitors to this country for the Festival of Britain, and I am glad to know that British shipping is preparing to play a major part in transporting these visitors both from the Continent and from more distant parts.

The continued expansion of the world trade in oil is reflected in the tanker tonnage on British register. Our tanker fleet, which before the war totalled about 3,000,000 gross registered tons, is now in the neighbourhood of 4,000,000 tons, and still growing. A new feature is the advent of the large tankers of 28,000 tons d.w. or more, which are to be used for bringing crude oil from the Middle East to the new British refineries. The first of these to be built in British yards have already been brought into service, and others are on order, or under construction, in this country.

In view of the many heartening signs of world economic recovery, it is all the more disappointing that we should be obliged to turn our thoughts, once again, to matters of defence and, in particular, to the place of shipping in the mutual defence plans of the North Atlantic Treaty countries. The Planning Board for Ocean Shipping, set up by the Council of the N.A.T.O., has been devoting its attention to formulating the principles and organisation which should govern the control of merchant shipping in any future conflict. Planning is still proceeding on these problems. Meanwhile, the Board is also attempting to assess what the demands on shipping might be and how far tonnage might be adequate to meet those demands. Since shipping cannot be confined to geographic areas, this assessment has to be made on a worldwide basis.

While these and other defence measures are a form of insurance, they are also, we believe, the best guarantee of peace. We all hope that they will be effective in helping to deter aggression and that our merchant fleet will be free to carry on the peaceful task for which it was designed and built, thus facilitating the flow of commerce between the nations of the world. In that hope I wish the shipping and shipbuilding industries another year of full and prosperous employment.

Alfred Barnes

BRITAIN'S DEPENDENCE ON SHIPPING

THE NEED TO PROVIDE FOR THE FUTURE : EARNINGS AND TAXATION

By SIR W. GUY ROPNER

President of the Chamber of Shipping of the United Kingdom

EVENTS of the last few weeks have thrown up in striking relief the dependence of this country upon its Mercantile Marine and have given point to the warnings by shipowners of the vulnerable position into which British shipping is in danger of drifting, due to taxation and the consequent impossibility of building out of profits.

A situation developed in which there was not enough active tonnage in the world to handle cargoes for which there was an urgent demand; in particular, this country was faced with the task of importing at one and the same time large quantities of vitally necessary coal, timber and grain. This is not the time to argue whether it could have been foreseen that coal production would fall short of the estimated quantity, whether or not the National Coal Board oversold abroad, or whether if imports were necessary they could not have been spread over a longer period. Opinions vary about these subjects.

The inevitable result of sudden demand for tonnage was that freight rates rose sharply, and the usual gossip was heard, like a still, small voice, making the usual accusation that British shipowners were exploiting the nation's misfortunes. I will return to this question of freight rates again a little later. What I want to suggest now in all modesty is that the country should be thankful that British shipowners set to work immediately they were able to do so to build up their war losses and replace the gaps in their fleets. Supposing, looking back upon their experiences after the First World War when a bad slump in shipping developed, they had been faint-hearted, or some might say merely sensible, and had adopted a policy of caution. There was every temptation for them to do so in view of steeply rising costs both of building and operation. In that event the country would have been in a very precarious position from the point of view of sea transport, and the present freight rates would have borne no comparison to the sky-high levels to which they would have rocketed in the wild scramble for tonnage.

Replacement of Obsolescent Ships

Prudence now suggests that we should think ahead. Shipowners have pointed out again and again that the cost of replacing war losses twice in a generation has meant the expenditure of nearly all their depreciation and war insurance money and they have little left with which to finance the replacement of obsolescent ships. Unless the Government modifies the present incidence of taxation, under which profits are taxed regardless of the fact that they are needed in the business, the British Mercantile Marine must progressively deteriorate. The money for replacement simply will not be there.

This brings me back to the question of the recent rise in freight rates. Many people are apt to confuse freight rates with profits. The Chamber of Shipping publishes every month an index figure of tramp freight rates based on tramp fixtures reported during the month, only fixtures in sterling being used. The starting point of 100 was the average level for 1948, during most of which year many of the freight rates were controlled by the Government, and if all other factors had remained stationary and the index had climbed back to that figure, most shipping companies would be showing good results—by which I mean good gross results. But the index went down to as low as 66.5 in November, 1949, and did not get up to the 80's until August last year. In those two years costs have risen steeply. I have only to point to the considerable increase in oil bunkers, the recent restriction on coal bunker supplies in this country, and the necessity of purchasing at higher rates abroad, with the consequent shutting out of cargo, and the continuing expense caused by delay in ports, to indicate that there are two curves rising almost parallel with each other—one freight rates, the other costs.

Lest it be thought that some form of Government control would have facilitated the provision of tonnage for the coal requirements, a moment's reflection will show that the mere act of control would not add one ship to the active register, and that no attempt at controlled freights would produce the desired result unless it was applied internationally. The effect of trying to control freight rates of British ships would have been to place them in an unfavourable position *vis-a-vis* their foreign competitors. Foreign shipping alone would have reaped the benefit of a strong market tendency, British ships being left behind at the post, all of which has happened more than once before.

I cannot help thinking that bulk buying has had something to do with the position in which we find ourselves. Under normal conditions of commercial trading there are numbers of people in each individual trade feeling their way, so to speak, into the market and sensing future requirements and demands. The successful people are those who are able to size up the situation to good purpose; the unsuccessful ones will sooner or later be driven out of the market. The estimates of the optimists are balanced against those of the pessimists, and more or less equilibrium is reached. There is not the same flexibility about central planning, whether it be buying or selling.

There seems to be no " hedging " against estimates. Once figures have been committed to paper they appear to be sacrosanct. Nobody in October seemed

to have the faintest idea that in November we were going to be in the middle of a coal crisis. It is this inelasticity which is to blame, and one can only hope that those in authority will profit by the lessons of the recent crisis. British shipowners, when they secured virtual freedom from control at the end of 1948, were under no illusions as to the possible risks they were running. They knew that they would be called upon to operate in circumstances where nearly all the imports into this country were for Government account, and where monopoly chartering would continue. They were prepared to accept the consequences of a fall in the market and when, in fact, freights started to slump they faced the situation with what philosophy they could summon up.

Shipping is all ups and downs. We have been experiencing one of the " ups." We are fully entitled to it, but would enjoy it all the more if it was of real and lasting use to the industry. People say, " You must be doing well." They think in figures of gross profits; we must think of net earnings. There is a world of difference. A gross profit of say £1,000,000 sounds marvellous, but what is the good of it if the bulk is used up by expenses of one sort and another, and a large slice of the remainder is taken away in taxation?

It only remains to add that in a national emergency shipowners are as concerned as anyone else to help the country in its difficulties, and in recent weeks the shipping industry has been doing all in its power to provide tonnage for the nation's essential needs.

It is pleasant to be able to record that the relationship between the industry and the Ministry of Transport throughout the year has continued on the friendly basis which has characterised it for a long time past. Everyone hopes that 1951 will see the world returning to normal conditions in which men's energies can be devoted to peaceful pursuits.

NORWEGIAN SHIPPING IN 1950

THE NEED FOR REPLACEMENTS : EFFECT OF GOVERNMENT REGULATIONS

By THS. S. FALCK, JR.

President of the Norwegian Shipowners' Association, 1950

DURING 1950 the Norwegian merchant fleet surpassed its prewar tonnage level. In fact, in the autumn of 1949 the volume of tonnage was already actually larger than before the war, excluding the contracts placed for account of Norwegian owners in 1940. Owing to the generally inferior quality of large tonnage groups during the postwar years, the real rehabilitation of the fleet could not be said to have been achieved until 1950. The excessive wear and tear suffered by the vessels surviving the war, and the considerable number of war-built standard ships added to our merchant fleet during the last few years, are today being compensated by a 10 per cent tonnage increase compared to the prewar level. During the period 1939 to 1950 a great number of our chief competitors have acquired larger and more modern fleets. As a consequence, even the rehabilitation achieved at present actually means a setback in relation to the international development of shipping.

During 1950 a number of new buildings have been delivered to Norwegian owners but the volume of contracts has been sharply reduced because very few licences have been granted during the last two or three years. At the same time the need for replacement will increase strongly during the next few years. The Norwegian merchant fleet, therefore, during the next two or three years will not by a long way show an increase parallel to the extent of delivered new buildings. In fact, as far as dry-cargo vessels are concerned, the tonnage volume may even decrease to some extent.

Generally speaking, Norwegian shipping has not benefited from the devaluation which took place in September, 1949. In the first place, a considerable part of the fleet, especially tankers, was fixed on long-term charters in currencies which likewise suffered devaluation. Furthermore, Norwegian owners, for the purpose of reconstruction, have had to take up large dollar loans, and their obligations, as measured in Norwegian kroner, consequently increased automatically. Even though devaluation meant some increase in the volume of earnings, the owners' debts and obligations automatically rose correspondingly. Later on came the increased costs which, at least in part, were due to the devaluation.

A number of new features have entered into the picture of Norwegian shipping during 1950. The consequences of the Act regarding New Working Hours at Sea, passed in 1949, are beginning to manifest themselves very strongly, both as regards expenditure and otherwise. In the same vein are the provisions for crew accommodation and a new manning scale. There has also been some increase in crew's wages. Among the Government's efforts to cut down on public as well as private investment, for the benefit of defence purposes, is a considerable tightening of the rules for depreciation allowances for the country's industry and trade, including shipping, to take effect for new building contracts made after October 20, 1950. On the other hand, the new rules for depreciation allowances provide opportunity for limited deposits for future investment. Such deposits, however, are bonded for the time being. The extraordinary tax on shipping, the " tonnage dues ", is still being levied.

In the foreign field we are still regarding flag discrimination as the most serious problem. The various efforts of O.E.E.C. for the liberalisation of shipping services are steps in the right direction, which have already actually resulted in a somewhat freer competition within Europe. However, there are still too many barriers for the shipping industry, barriers which can only lead to higher prices of goods for consumers. It is to be hoped that the war in Asia and other international entanglements will not put an end to continued liberalisation efforts, which will not benefit shipping alone, but which will also have a stimulating effect upon the life and progress of the entire world community.

"ECOSOC" ET CETERA

A MAZE OF ORGANISATIONS WHICH IMPINGE ON SHIPPING

By C. D. STORRS

Chairman of the Liverpool Steam Ship Owners' Association

FOR some years past it has been the custom during the Christmas season for schoolmasters to set a holiday task for their pupils. This has become such a popular pastime that quite a wide circle of people indulge in the game, and the questions and answers are printed in the newspapers for the edification of those who succeed and those who fail in solving the puzzles. The questions are based on what is now familiarly known as the " quiz ", and are framed like clues to a good crossword puzzle. Much ingenuity is expended in couching the questions in ambiguous and mysterious phrases. If, for example, the question was, " Who was the English monarch who suggested that interesting results might follow from a *post-mortem* examination ?", the answer expected (as, of course, my readers would immediately have discovered) is Mary Tudor, who said that, after her death, Calais would be found written on her heart.

The Christmas season is over, but it occurs to me that one could have quite a little fun in a similar sort of way, perhaps, by trying to identify organisations from their initials—and in some respects I, at any rate, have found this nearly as difficult as trying to answer the Christmas puzzle. This is an age of initials, and almost every organisation is known merely by the letters which make up its title. If, as luck will have it, these initials form a kind of word which is euphonious, so much the better. If they do not, we get bogged down in a vast collection of abbreviations, a test of the memory and an irritation to the mind.

Twenty Questions

I have compiled a score of these abridgements in connection with shipping, which might baffle even those whose daily task it is to deal with shipping matters. Some of the curtailed descriptions do form so-called words, but others are simply a jumble of letters. The 20 I have selected are as follows :—

1. WHO	11. DIWE
2. ECOSOC	12. BTC
3. IMCO	13. ICC
4. ILO	14. BMLA
5. SCAP	15. OEEC
6. GATT	16. ISF
7. ITO	17. CMI
8. ECA	18. NFAS
9. ICS	19. PLA
10. RAMNAC	20. BISCO

Let us take the first three—WHO, ECOSOC and IMCO. WHO stands for World Health Organisation, which was set up by ECOSOC in 1946. Its work is actually carried on by WHA (World Health Assembly, or more familiarly HA—Health Assembly). Its activities cannot help but impinge upon shipping, and, indeed, it requires careful watching.

One of the distressing developments of these organisations is that not content with concertina-ing their names into initials, they also play havoc with the English language. I do not know who is responsible for such words as "deratization" or "disinfestation", but the use of them must cause Mr. Churchill, Sir Alan Herbert and Sir Ernest Gowers—all purists—to become hot under the collar. In fact if any one of them in the heat of the moment wanted to remove his collar, I suppose this could be described as " decollarization " !

Specialised Agencies

We now come to ECOSOC, which stands for the Economic and Social Council of the United Nations. ECOSOC is empowered by the charter to appoint commissions—expert investigating bodies—on matters within its competence. (I sometimes wonder whether it confines itself strictly to these limits). It also has specialised agencies—inter-Governmental organisations established to deal with specific international problems. The ILO (International Labour Organisation) is one; IMCO (Intergovernmental Maritime Consultative Organisation) is another. The ILO is in full swing; IMCO still has to be established, and, in fact, will not come into effect until 21 countries, seven of which must have not less than 1,000,000 gross tons of shipping each, have signed the necessary convention. Here are two organisations most certainly likely to concern themselves with shipping.

SCAP, GATT and ITO are three other bodies of an international character which we find involving themselves in shipping. SCAP, of course, is the Supreme Command Allied Powers, and decisions about Japanese shipbuilding and shipowning come within its orbit. GATT (General Agreement on Tariffs and Trade) can hardly be dissociated from sea transport, nor can ITO (International Trade Organisation). In fact, as one goes through the list—and I give the full descriptions at the end of this article—there is not one of these organisations which does not in some way or another react upon shipping, the last of which might perhaps be mentioned.

Government Monopoly

BISCO, sometimes known as BISCORP, the British Iron & Steel Corporation, is the instrument of the Ministry of Supply to whom we must sell our scrap tonnage, whose monopoly has stopped shipowners from obtaining the world market price for tonnage sold for scrap and so deprived the shipping industry not only of additional foreign currency but also, by the controlled price they give, of cash resources that would

have enabled us to lay down the best part of half a dozen more ships since the end of the war.

Of course, in my list are several bodies within the shipping industry itself, and they are probably quite well known to most of my readers. But I would not have them believe that this is anything like a complete enumeration of the societies, bodies, associations, federations, unions and specialised agencies, etc., which have come into being, many of them with a rush as the result of war. The wonder is that with so many mentors shipping is able to proceed more or less calmly on its way and to carry out its age-old function of moving people and cargoes with efficiency and economy—and even sometimes to make a modest profit out of the transaction.

KEY TO LIST OF ABBREVIATIONS

1. World Health Organisation.
2. Economic and Social Council.
3. Inter governmental Maritime Consultative Organisation.
4. International Labour Organisation.
5. Supreme Command Allied Powers.
6. General Agreement on Tariffs and Trade.
7. International Trade Organisation.
8. Economic Cooperation Administration.
9. International Chamber of Shipping.
10. Radio Aids to Marine Navigation Application Committee.
11. Docks & Inland Waterways Executive.
12. British Transport Commission.
13. International Chamber of Commerce.
14. British Maritime Law Association.
15. Organisation for European Economic Cooperation.
16. International Shipping Federation.
17. Comite Maritime International.
18. National Federation of American Shipping.
19. Port of London Authority.
20. British Iron & Steel Corporation.

THE FRENCH MERCANTILE MARINE

(*Continued from opposite page*)

Roussel for the Far East, the *Lavoisier* for French West Africa, and the *Claude Bernard* serving South America, as well as the launchings of the *Général Leclerc*, *Maréchal Foch*, *Lyautey* and *Provence* of 18,000 tons, also intended for maintaining the service to Latin America.

The year 1950, therefore, marked an appreciable progress in the improvement of our fleet of passenger ships, which should be continued during the years to come. Several passenger ships are at present on the stocks or in course of completion. The C.G.T. will be putting two 10,000-tons ships into service on the North Africa route in 1951 and two 20,000-tons ships on the West Indies run in 1952. The actual volume of orders amounts to 270,000 tons, while further new building is said to be under consideration. As the average speed of the new vessels exceeds that prior to 1939, it is permissible to believe that our passenger fleet will in a few years' time regain, if not in tonnage at least in accommodation available, a level equal to that of 1939, in spite of the fact that an appreciable portion of the tonnage at present in service will require early replacement.

Notwithstanding the improvement in the quality of our mercantile fleet achieved during the course of the past year, a real effort will have to be made to bring it up to date during the ensuing years; it might, in fact, be considered that one million tons—300,000 tons in passenger steamers and 700,000 tons in cargo vessels will have to be replaced as speedily as possible either on account of age or owing to the lack of specialisation in certain vessels, particularly Liberty ships. Such tonnage requirements will apparently ensure adequate work for our shipyards during the course of the next few years, provided that the question of financing orders finds a satisfactory solution. The Government's part in the programme for the construction of new vessels consequent upon the requisitioning system is in fact approaching its end, and henceforward it will rest with the shipowners to finance their orders out of their own resources.

French Shipbuilding Costs

Now costs in the French shipyards are appreciably higher than international costs, and there could be no question of asking shipowners to bear such a difference in cost while their receipts are subject to the laws of international competition. Accordingly, this represents the threat of a serious crisis for the French shipyards, which is becoming apparent in an increasing gap between the number of launchings and the number of bottoms laid down. Accordingly, a shipbuilding statute is in the course of preparation and will shortly be submitted to Parliament. It provides for the allocation to the shipyards of compensatory premiums recoverable, however, in the form of various taxes imposed on shipbuilding activities and indirect measures, tax and customs relief, etc. Until such time as this statute comes into force, the Shipbuilding Conference has prepared a provisional system intended to limit the immediate demands on their finances which the shipowners will have to make by allowing them, through the Crédit National, long-term loans at low rates of interest.

These measures will, no doubt, serve to maintain intact the production capacity of our shipyards, which have, during the last five years, played an effective part in the renewal of the French mercantile fleet. It was, moreover, in the national interests especially at a time when international tension imposes a new effort on the country not to allow an industry employing 45,000 workers, and representing a considerable economic potential, to perish.

Tourist Traffic

The general situation is not without some effect on the activities of mercantile marine fleets, giving new life to the great traffic movements in which the economic readjustment in Europe had brought about a gradual decline. The French mercantile fleet occupies a favourable position in this respect, since the readjustment of our commercial balance provides for the operation of our vessels an equilibrium between imports and exports which they have not known for the past 20 years. In regard to passenger traffic this is obviously subject, more than any other, to the hazards inherent in the international situation. 1950 has, however, proved satisfactory in that respect, and French shipowners are entitled to claim a large share of the tourist traffic, which, in 1950, has placed France in the leading place among the tourist carrying nations of Europe.

With the beginning of the New Year, the French Mercantile Marine, conscious of the place which it again occupies in the hierarchy of the world fleets, may look to the future with confidence. No doubt its future prosperity no longer depends entirely on itself; but in the efforts made by the free maritime nations to ensure peace in the world, it is prepared to play the part which the colonial and maritime importance of France gives it the right to claim.

THE GREEK liner *Neptunia*, 17,000 tons, will enter the North Atlantic cargo and passenger service next March, sailing from New York and Boston for Cobh, Cherbourg and Southampton. She carries 814 passengers, and was formerly the Dutch *Johan de Witt*. The *Neptunia* has been maintaining an express passenger service to the Mediterranean with the *Nea Hellas* (27,000 tons). The latter ship, formerly the Swedish-American liner *Kungsholm*, will continue in the same service, but her ports of call will be altered slightly.

THE FRENCH MERCANTILE MARINE IN 1950

REHABILITATION OF THE FLEET : GOVERNMENT-SUBSIDISED SHIPBUILDING PROGRAMME

By M. JEAN MARIE

Chairman of the Compagnie Générale Transatlantique (French Line)

In carrying out, at the end of the year, a rapid survey of French maritime activities, it is interesting to stress the distinct progress begun during this year in the rebuilding of our merchant tonnage. Whereas the preceding years could in fact be regarded as transitional years, during which the first objective to be attained was the utilisation of the maximum tonnage, the year 1950, in which the tonnage in operation has not only reached but has actually appreciably exceeded the 1939 level, has rendered possible a distinct improvement in the quality of the fleet. At the same time, the forthcoming completion of the Government programme for the construction of new vessels gives fresh importance to orders from the private shipowners and, in consequence, again raises the question of a shipbuilding statute.

The year 1950 saw the completion of the first stage of our maritime recovery : that of the quantitative reconstruction of the tonnage in operation at the 1939 level. In conformity with the scheme prepared in 1945 by the Ministry for the Mercantile Marine, the merchant tonnage in service reached 2,730,000 tons gross at the beginning of the year—the 1939 figure; since then, it has considerably exceeded it, because at October 1, 1950, the date on which the latest known statistics were published, it had reached 2,905,703 tons, excluding ships in course of being put into service again after reconversion. Accordingly, the objective of 3,000,000 tons will probably be attained by the beginning of 1951, as planned.

100 New Ships

Although it had until then been in the preliminary stage, with only a few vessels launched, this shipbuilding programme entered an active stage of realisation two years ago, and the years 1949 and 1950 have been marked by a large number of ships being launched and put into service—a total of 100 vessels of all types and all sizes with an aggregate gross tonnage of about 500,000 tons; of these, 22 vessels totalling 140,000 tons were for the Compagnie Générale Transatlantique alone. The tonnage in service increased from October, 1949, to October, 1950, by 243,000 tons, in spite of the appreciable number of ships taken out of service during the year (80,941 tons between January and October) among units considered to be over age.

The withdrawal of these worn-out units, rendered possible by the putting into service of new vessels, has thus had a rejuvenating effect on the fleet. In the cargo department alone, which up to now has been the principal beneficiary of this reconstruction effort, the tonnage of vessels over 20 years old has been reduced from 27 to 21 per cent, while that of vessels of less than 5 years old increased from 44 to 50 per cent. Excluding Liberty ships, the tonnage of vessels less than 10 years old has reached 63 per cent. In other words, although the programme for the renewal of the fleet is far from complete, French shipowners now have at their disposal a number of vessels with modern equipment very superior technically to those which they have replaced.

A glance at the distribution of this tonnage among the different classes of vessel shows, however, that our fleet of passenger vessels still calls for a special effort. Although the tonnage of cargo vessels has reached 1,607,849 tons—that is to say 129 per cent of that in 1939—and the tonnage of tankers has risen to 600,887 tons (186 per cent) the tonnage of passenger liners represents, at 696,967 tons, only 59 per cent of the tonnage in service when war was declared.

This delay is the direct consequence of the priority which, reasonably enough, was given in 1945 to the rebuilding of the cargo fleet. The enormous demands of our national economy in raw materials and manufactured products necessitated an appreciable tonnage for their transport; moreover, the extraordinary development of air transport during the hostilities led shipowners to exercise caution in connection with the maritime conveyance of passengers; and finally, the planning and carrying into effect of a programme for the construction of passenger liners takes a long time. Nevertheless, appreciable progress has also been achieved in this particular sphere during 1950. In spite of the condemning of about 20,000 tons of obsolete passenger steamers, the tonnage of the passenger steamers in service increased from 601,000 tons at the end of 1949 to 697,000 tons at the end of 1950, an increase of about 100,000 tons.

Commissioning of the "Liberté"

The most important vessel to be put into service during the course of the year was the liner *Liberté*, of 49,746 tons gross, by the Compagnie Générale Transatlantique, on the North Atlantic route. This completed the re-equipment of the French New York Line, which suffered particularly during the hostilities, since after the war it had only the *Ile de France*, which had been converted into a troop carrier. Shipping journals have already devoted considerable space to the *Liberté*. We would merely recall that two years work at the St. Nazaire-Penhoët shipbuilding yards has converted the *Liberté* into practically a new ship, totally different from the old *Europa*. The work carried out extended to the design of the vessel as a whole, as well as to the electrical and safety installations, while the interior fittings were completely altered to suit French tastes. Put into service on the North Atlantic route on August 17, the *Liberté* achieved an immediate success, and since then her voyages have confirmed her popularity among transatlantic passengers.

Other vessels launched or put into service have, moreover, contributed their share to the re-equipment of the passenger lines intended for the French Union. Among the most important, mention may be made of the *Colombie*, 13,390 tons, serving the French West Indies, the *Kairouan* for North Africa, the *Félix*

(*Continued on opposite page*)

BRITISH SHIPREPAIRING PROBLEMS

THE INFLUENCE OF COSTS ON REPAIR WORK

By E. L. CHAMPNESS

Chairman of the Dry Dock Owners and Repairers Central Council

THE recession which threatened shipbuilding and shiprepairing at the beginning of 1950 did not in fact materialise as far as new shipbuilding work is concerned. Shiprepairing is quieter than a year ago because demand has returned to a much more normal level and the period of reconstructions and reconversions is now definitely over.

The shiprepairing industry in the United Kingdom has streamlined itself to meet present and anticipated future conditions. It is fortunate that new ship construction programmes are such, that for some years to come they will enable the shipyards to absorb at least some of the excess labour available with the passing away of the abnormal repair work conditions in the war and immediate postwar years.

Paying full attention to the need for keeping costs down to a competitive level with costs abroad, the shiprepairers have reduced the labour force to a minimum number of men of the greatest efficiency, but labour and material costs show no sign of decline—rather the reverse. The only other factors in total cost, apart from the reasonable return for his work to which the shiprepairer is entitled, lie in overheads and outgoings which contain many elements such as taxation (Imperial and local), electric power, coal and other fuel, transport and other services, all of which equally show little sign of a decline in cost: and these are costs which are not within the control of the shiprepairers.

The shiprepairer, like every other industrialist, looks forward to the day when the problem of reduction of taxation, both direct and indirect, will be seriously tackled and an example of economical conduct of business is set by the State, not least in its nationalised industries with their ever increasing costs, which affect us all. The existing dis-incentives to increased production and enthusiastic application to the job in hand at all levels, caused by the present high levels of taxation and threatened increases, are apparently not fully appreciated.

Inadequate Depreciation Allowances

A special taxation problem affecting owners of dry docks is the present inadequacy of the depreciation allowances applied to dry docks, due to failure to recognise the incidence of obsolescence and their treatment as buildings instead of what they really are, items of industrial plant. The representations which the industry has made on this matter are of particular urgency when modernisation of existing dry docks and the construction of new dry docks is demanded by modern developments in shipping and the increased size of new ships, particularly tankers.

In an endeavour to reduce overheads in all possible ways, shiprepairers have been examining in some detail the heavy incidence of insurance cost often indeed double insurance which results from the present unlimited liability of shiprepairers: and some tangible results from their endeavours in that direction may eventually help to reduce costs in consequence. Meanwhile the same problems as have been present since the resumption of foreign competition dog the competitive position of the shiprepairers, *vis-a-vis* their near-Continental rivals, in regard to such matters as overtime rates, shorter working hours and the quick turnround which has become increasingly necessary with the large vessels of high capital cost in the present-day world.

Greater Effort Required

Individual exhortations from political sources to work harder can, however effective, only answer one part of the problem: increased production can and should be sought in other directions, including wider and bigger issues which involve the trade unions, both centrally and locally. There are many matters well worthy of their most careful consideration with a view to impressing upon the "rank and file" of their membership and their district delegates the urgent need for action to step up output, and often by means which would involve little greater physical exertion on the part of the individual workman.

A number of firms are embarking on new dry dock projects or are modernising existing dry docks at the present time. Unfortunately the capital cost of work of this kind is extremely high, though there seems no likelihood of it being less for some years to come unless civil engineers can reduce costs by larger scale excavating machinery and other improved methods and practice. Modernisation costs are estimated in some cases to be as much as six times the cost of the original dry dock, and to secure adequate return for this high outlay the expensive plant and equipment with high and continuous overheads will, where manpower makes it possible, have to be worked, supervised and manned more than 44 hours out of the total 168 hours of time in a week.

The Key to Greater Production and Speed

In this question of total hours worked in shiprepairing establishments, apart altogether from additional facilities other than by way of dry docks of the largest size, lies the key to potentially much greater production and speed. It is also in the question of speed of repairs that practice in this country meets its greatest challenge and any recession in trade will bring very sharply into the limelight a problem which all engaged in the industry must face sooner or later.

Curiously enough it may be the need to spread the electricity load and avoid cuts which may force a resumption of 5½ days week working to utilise the best of the daylight hours, a matter of some importance in all work such as shipbuilding and shiprepairing, which are necessarily partly open-air activities in spite of modern practice with enclosed shops for much of the fabrication work. The bottleneck in power supply has a great influence in preventing British firms in many branches of industry from emulating our American friends. The reports of the Anglo-American Productivity Council point to the use of two or three times as much electric power per man in labour saving devices as compared with this country. British skill and craftsmanship armed with such devices can beat the world.

Priority in Steel Deliveries

On the materials side priorities in steel deliveries for shiprepair work are essential, and it is to be hoped that this claim will be fully realised and satisfied, should questions of priorities arise again from the development of the rearmament programme or as a result of nationalisation.

Cases are known where near-Continental shiprepairers have been able to quote quick times for re-tubing of boilers using British-made tubes supplied to them without delay in the export market: at the same time British shiprepairers may have to wait months for deliveries and so lose the whole job, including all the other shiprepair work involved, to their foreign rivals. This is an example of the rigidity of controls and planning, so feared by business men generally. These things ought not to occur and all such incidents are no less damaging to our home industry which, if not so directly obvious, is nevertheless in fact an important factor in the export market.

Sir Frank Alexander, president

Mr. H. E. Ruffe, chairman of council

INSTITUTE OF CHARTERED SHIPBROKERS

THE NEED FOR CONDITIONS OF GREATER FREEDOM

By SIR FRANK S. ALEXANDER

THE YEAR which has just drawn to a close has been a most interesting one for the shipbroker, and also for the shipowner. At the end of 1949, things were in a depressing and perplexing state, and brokers had difficulty in finding remunerative employment for the tonnage they had to work. During the early part of 1950, however, there was some improvement in freight rates and the volume of employment, but this improvement was swallowed up by rising costs, and by the time the Korean crisis loomed up, it appeared that the industry in general was in for a very difficult period.

Since then, however, there has been a radical change, and a grave shortage of raw materials in many countries has been revealed. This circumstance, coupled with the fact that the demand for tramp tonnage for time charter has reached considerable proportions, has resulted in a preponderance of demand over supply, and freight rates have now reached a level which seemed impossible only a few months ago.

Recently, of course, the demand for tonnage has been further augmented by the unpleasant revelation of the coal supply position in the United Kingdom, and in other countries, which have in the past relied mainly upon British coal for their fuel supplies. Thus not only is there a demand for coal tonnage from United States to United Kingdom, but also to many of the Continental countries, while shipments of coal have also been made from Calcutta to Denmark and from South Africa to Northern Europe, including the Scandinavian countries. Needless to say, this increased demand for tramp tonnage has added greatly to the interest in life of the London shipbroker but unfortunately the curtailment of coal exports, already at a comparatively low level, has further reduced the provincial brokers' sphere of activity.

The improvement to which I have referred has also been shared by other sections of the shipbroking community, though in different degrees. Coasting rates have remained unchanged during the past few months, but in the short-sea trade there has been a considerable advance in volume of business and rates, so that the shipbroker operating in this trade is finding business fairly good.

In the tanker trade, there is a period of great activity and high rates. The major oil companies have done what they could to control the advance in freight rates, but these have risen substantially during the past few months. The demand for oil seems to be insatiable and the level of the market is giving further encouragement to owners to add to their tanker fleets. Unfortunately, foreign owners seem to get more encouragement from their Governments to add to their tonnage, than do the British owners, which of course applies to dry-cargo vessels as well as to tankers.

The conditions outlined above have added to the activity of the sale and purchase broker, and have had a very great effect on the price of secondhand tonnage. Values have appreciated considerably during the past twelve months.

Trade Subject to Political Control

Much of the world's trade is still subject to political control, combined with currency restrictions, bulk selling and bulk buying, and although in the case of the latter there have been signs of easement in some directions, it is to be feared that, owing to the present political and world situation, any general movement away from the present practice may be still longer delayed. Until the trade in these, at present controlled, commodities reverts again to the well tried and normal channels, and the experienced merchant once again becomes the charterer of tonnage instead of that party being a Government department, the shipbroker, including of course the chartering agent, will be denied the opportunity of exercising to the full his experience, skill and ability as a negotiator. Conditions of greater freedom will mean more work for the broker, but he will welcome it.

The Institute of Chartered Shipbrokers, of which I have the honour to be president this year, continues to progress both in number of members and in usefulness to the shipbroking community. The Council is actively engaged in connection with the various problems and day-to-day difficulties arising within the profession. The membership is fully maintained, and the large number of young men in the shipping business desiring to qualify for membership of the Institute is very gratifying and encouraging. The standard of knowledge demanded for the examinations continues

to be raised from time to time. The usual courses of lectures and instruction arranged within the Institute, both in London and the provinces, and also the classes at the various technical colleges, are proving popular and well attended. Over 250 candidates sat the intermediate and final examinations in 1950, and there is every sign that a similar number are preparing themselves for this year's examinations.

In this short survey of last year I must mention the passing of Mr. John Vernon, who was for so many years our secretary, and to whom the Institute owes an enormous debt of gratitude. He will be a difficult man to replace and we shall all miss his kindly personality.

Today, the outlook in international affairs is terribly uncertain, with many circumstances to cause worry not only to Governments, but to the serious business man. With just a little goodwill, however, it should be possible to arrange matters so that a world cataclysm is avoided, and peaceful trading be allowed to carry on all over the world. In closing I should like to offer to Institute members, and to your readers all over the world, my best wishes for 1951. May it be a period of peace and prosperity with you all.

BRITISH SHIPBUILDING IN 1950

THE FIFTH YEAR OF POSTWAR SHIPBUILDING: FUTURE PROSPECTS

By RONALD KENDALL

SINCE THE war ended in 1945, the shipyards of the United Kingdom have launched ships totalling approximately 6½ million tons gross, or only about 250,000 tons less than the total for the rest of the world in the same period. This is an achievement of high order, particularly in view of the many and varied difficulties which have been encountered in all kinds of industrial activity in the first five postwar years. There have been political unrest, stalemate in the attempt to form a real association of United Nations, bulk buying by Governments, a fall in the production of the industrial worker generally as compared with prewar, high costs of all manner of materials, and shortage of most things needed for ships, ranging from steel to glass. When it is recalled that this record output of ships has been achieved by an industry allowed to fall into the doldrums in the earlier interwar years, and which even in the four or five years preceding the Second World War had to rely on tramp shipping subsidies, short lived, but so welcome, to keep the smaller yards going, the nature of what has been accomplished since 1945 falls into real perspective. The nation owes a great deal to its shipbuilding industry.

No Sign of a Slump

It was, of course, to be expected that with the end of the war there would be a heavy demand for ships. The potential capacity of the British shipbuilding industry—some 3,000,000 tons annually taken in consideration with a tradition for the most efficient designs and best craftsmanship, made it clear that this country must play a large part in meeting the world demand for ships. As the large building programme was accompanied by a considerable volume of reconversion work, transforming passenger and cargo liners from their wartime to peacetime guise, as well as large-scale salvage and repair work, the demand on shipbuilding and repairing facilities, as is obvious, was as heavy as it has ever been. It may be said that the year 1950 completed this boom period, in the sense that the five years from 1945 to 1950 covered the more urgent replacements and reconversion work. There were several shipowners, notably some in the tramp section, who relied on the old dictum that a boom must be followed by a slump. In fact, as far as can be seen, there is no sign of an impending slump.

The factors which helped to avoid the sequence of events which followed the First World War are threefold. First, due to the phenomenal demand for oil by all countries, and the change in oil sources, which has enabled the design and construction of oil tankers as large in displacement as many battleships, the shipyards have had to deal with a very considerable programme of oil tanker building, estimated to have been in the region of 1,500,000 tons gross from world shipyards during the past year. This programme, which is far from being completed, has been the main preoccupation of British shipyards during the past year. Second, it has been impossible in most countries, and certainly in the United Kingdom, to reduce the cost of any manufactured article, including ships, for reasons which do not concern this brief review, so that even had not the tanker programme eventuated, it is more than doubtful whether shipbuilding costs could have been reduced sufficiently to attract orders from those standing off the market for a fall in price. Third, the unsatisfactory state of world affairs, culminating last year in the Korean war and the subsequent decision to rearm, has been responsible for in increase in the demand for ships of all types.

Preponderance of Tankers

The trend and effect of these factors, and others not yet mentioned, may be seen from a review of developments during 1950. The large part which the oil industry has played is seen in the fact that of about 1,000,000 tons of ships ordered between January and September last, more than 50 per cent represented tanker tonnage, while some 25 per cent were cargo liners; passenger ships and passenger-cargo liners amount to only about 5 per cent. Since that time it is estimated that a further 500,000 tons gross have been contracted for, and tankers again are heavily represented; cargo liners also figure in the list, while the beginning of what may be a tramp ship replacement programme can be seen, but passenger shipping is as poorly represented as earlier in the year. There can be no doubt that tramp owners in general have left the ordering of ships rather late, and while there are now orders for at least 48 such ships, many of them will not be delivered for another two years or more.

In retrospect, it may be felt that the position in 1948, when the shipbuilding industry had ships under construction or on order amounting to about 4½ million tons gross, and an annual capacity in completions, principally because of shortage of materials, of only 1¼ million tons, may have at least assisted in the resuscitation of foreign shipbuilding, particularly in Germany and Japan, though there were of course, other factors, including the foreign policy of the Western nations. With a total order book in 1950 of some 3,300,000 tons, however, deliveries from British yards are no less favourable than in any other country, as the total of completions during that year was some 1,400,000 tons.

As far as can be seen in the unsettled state of world affairs, the outlook for the industry is favourable. Orders are in hand, in some cases for two or three years ahead, the industry is well manned, and from the viewpoint of plant and machinery is more efficient that ever before. The reputation of the industry among the 27 countries who have placed orders here since the war is as high as ever, and even enhanced by recent technical advances in both hull construction and marine engineering, a trend which the concentration on research in this country will accentuate.

AMERICAN SHIPPING IN 1950

PROPOSALS FOR CHANGES IN MARITIME POLICY

By GEORGE W. MORGAN

President of the Association of American Ship Owners

THE DEMISE of the U.S. Maritime Commission and the assumption of its functions by the Department of Commerce may, in the long view, be the most important single development during 1950 for American shipping. Of greater immediate impact, however, was the outbreak of hostilities in Korea, because the shipping services required for the support of the forces of General MacArthur were so great that employment was provided for all idle privately-owned American-flag ships and, in addition, a substantial number of Government-owned vessels were broken out of the reserve fleet and operated by American owners.

As for 1951 and the future, about the only certainty for American shipping is that there will be problems to be met. But at this moment the shipowner cannot know whether they are to be the problems that arise in periods of grave national and world crisis or the ones that necessarily exist when competitively unrealistic costs result from restrictive laws and Government regulation.

Reorganisation of the Maritime Commission

The reorganisation of the Maritime Commission placed responsibility for the initial formulation and for the administration of maritime policy in a Cabinet officer who has within his department ample facilities and talent for the study and evaluation of the very considerable problems of American shipping. That Secretary of Commerce Sawyer will use them fully seems probable because in his Report to the President on "Issues Involved in a Unified and Co-ordinated Federal Program for Transportation," he questioned the soundness of the American maritime subsidy system under which only 13 owners receive differential payments and other benefits while the great majority of American owners are left to fend for themselves in the unnatural economic environment that has been created as a result of Government controls and regulations. An objectively critical reappraisal of the policies pursued under the Merchant Marine Act, 1936, would be followed with great interest by the Association of American Ship Owners, none of the members of which has been subsidised under that statute.

The former Maritime Commission laboured under severe handicaps. Its organisation was cumbersome, since it was composed of five members, each of whom had an equal voice in its affairs, and while an agency so constituted was well adapted to the performance of quasi-judicial, regulatory functions, it proved unsuitable for the great volume of administrative matters that required disposition. Furthermore, the effectiveness of the old Commission was seriously impaired because it was the object of severe and sustained criticism by important committees of the Congress and by the influential General Accounting Office, which is headed by Comptroller General Lindsay Warren. The new centralisation of responsibility promises to bring about a more rapid disposition of maritime business and more affirmative Government shipping policies.

Membership on the old Commission was barred under the law to anyone who within the previous three years had had any interest in shipping or in any associated business. When the Commission was abolished and its functions transferred to the Department of Commerce, the President applied no such limitation to the qualifications either of the new Maritime Administrator or of the other two members of the new Maritime Board. He appointed Vice-Admiral Edward L. Cochrane as Administrator-Board Chairman, and as the other members of the Board he designated Albert W. Gatov, who had been the able president of the Pacific-American Steamship Association, and Robert L. Williams, a distinguished Admiralty lawyer from Baltimore. Thus, the officials who, on behalf of the Department of Commerce, are to have close liaison with the industry and its problems are already well informed on maritime matters.

During 1950 major proposals for changes in American maritime policy were advocated in the course of the study of the merchant marine and its problems that was made by a special subcommittee of the Senate Committee on Interstate and Foreign Commerce. Senator Warren G. Magnuson of the State of Washington was the chairman of the subcommittee. He and the other members of the subcommittee, Senators Brien McMahon of Connecticut, Herbert R. O'Conor of Maryland, Owen Brewster of Maine and John J. Williams of Delaware, conducted extensive hearings at which all segments of the industry were invited to express views. The final report contained much valuable information, but legislative recommendations were deferred pending the submission to the next Congress of the views of the Secretary of Commerce and the new Federal Maritime Board.

The Gray Report

American shipowners were far from happy about the shipping proposals contained in the "Report to the President on Foreign Economic Policies" that was prepared by Gordon Gray, Special Assistant to the President and formerly Secretary of the Army. When the report was released in November, these proposals did not come as a surprise, however, because there had for some time been widespread and reasonably well informed speculation regarding their ultimate substance.

Mr. Gray noted "a partial incompatibility between the goal of increasing competition in the sale of shipping services and the goal of insuring the wartime availability of a large and efficient United States merchant marine." He very properly observed that where such a conflict exists it must be resolved in favour of our national defence requirements. This led him to conclude that "the two basic policy questions in the shipping area are, first, the question of the minimum size of the United States merchant fleet which is necessitated by our national security interests, and, second, the question of the most suitable means for assuring the maintenance of a fleet of that size." Some observers point to the statutory definitions of our maritime policy and say

that his analysis over-simplifies the problem. But, whether or not over-simplified, it poses a question that seems to defy answering, at least until world politics are much more stable than they are today.

Dangers of an Inadequate Fleet

While the report advises us that estimates of shipping requirements and availabilities are now being prepared by the National Security Resources Board and other Government agencies, experience seems to lead to the conclusion that, until we know precisely by whom, where and with what resources our security is endangered, we cannot even approximately predict the minimum requirements for its protection. And if that cannot be done, it seems necessary to conclude that it would be wiser in the national interest to have a larger merchant fleet than might prove necessary instead of an inadequate one.

Most of Mr. Gray's criticism was directed in theory at cargo preferences as an instrument for maintaining a fleet of security size. At the same time his report took cognizance of the fact that similar devices are employed by other maritime nations to direct cargoes to vessels of their choosing. He did not, therefore, recommend complete and unilateral abolition of cargo preferences, but suggested that reciprocal relaxations of direct and indirect flag discriminations be sought through negotiation with other nations. If such negotiations are successful, the report recommended, the United States should stand ready to assure the maintenance of a security-size fleet by an extension of direct subsidy payments.

There seems little doubt that the Maritime Administration will be obliged to give serious attention to the desirability, in the national interest, of broadening the subsidy system so that its benefits will be available to more American owners than receive them today. Declining foreign aid shipments and the firm grip that Federal laws and regulations hold upon the high level of maritime costs leave no other alternative.

But another matter, not touched upon by Mr. Gray, is the fate of the domestic trades. The ships that have been in home waters at the outbreak of an emergency have been most readily available to supply military requirements. Little has been done since the war to re-establish these trades and thereby to create what should be the hard core of our security fleet. At the end of November, however, Secretary Sawyer announced that this matter would receive prompt attention and that his office would begin a thorough study of the competitive rate practices of the railroads, as Senator Magnuson's subcommittee had suggested should be done.

It seems, therefore, that 1950 has been largely one of preparation for American shipping. The Government agency charged with administration of maritime matters has been modernised in the interests of efficiency and much mature and serious thought has been given to the problems of the industry. If we are to be allowed to remain at peace, we may well look forward to a period in which we should make substantial progress toward solutions of our many and difficult problems.

THE SHIP SURVEYORS' OUTLOOK

(*Continued from opposite page*)

wet weather. At the present time most of these establishments have good cement roads and paths making for easier handling of materials. Some dry docks in past years were hardly *dry* docks at all. They were full of pot-holes which filled with mud and water, making it uncomfortable for those who had to work in them.

Another vexed question is the demarcation of work. Surely in these days of enlightenment there should be some revision on this vexed question. It is absurd that so many tradesmen have to attend to very small jobs. How often one meets with cases, particularly in repairs, where a comparatively small job requires the attendance of several craftsmen, and some of these craftsmen have to stand and idle about until the work has progressed sufficiently for them to proceed. One case I remember distinctly. During the war a gun platform sustained damage; the repair required removing some handrails and stanchions for fairing, lifting part of wood platform for access, fairing in place angle boundary bar and brackets, and renewing some electric light cable. What an army of men to do this small job—blacksmith and striker, carpenter and mate, plater and squad of riveters and an electrician.

Comparison of Costs

We are hearing a lot at present about the high cost of shipbuilding and repairing. One cannot compare the cost per deadweight ton of 50 years ago when it was about £7 per ton for tramp steamers, with the present cost of an ocean-going cargo vessel. Today we have greater power of machinery, electric lighting, wireless, radar, direction finders, echo sounding, domestic refrigeration, etc. The living accommodation has been completely revolutionised; the master has his suite of rooms; the chief engineer and chief officer have office, sitting rooms and bedrooms; other deck and engine officers have single berths and a common sitting room; petty officers have single rooms; sailors and firemen are only two in a berth, with separate messrooms. All have ample washing and bathing facilities.

Due to the ever changing design of ships, the work of surveyors has become much more technical. There are, as is well known, surveyors working under different categories: classification surveyors, Ministry of Transport surveyors, owner's superintendents, and private surveyors. It is most pleasing to record that at the present time there is great cooperation among all these to work in unison for the common good. All have met and are meeting new problems in their work, and when meeting on a case, ideas and experiences are exchanged in order to work out and endeavour to eliminate troubles. The rapid development of marine propulsion and ship construction demand this cooperation.

A Glorious Heritage

All who are engaged in this great industry are heirs of a great and glorious heritage. On our younger shipbuilders, engineers and surveyors the country relies to uphold our great tradition. Our forebears in centuries past were merchant adventurers, men of enterprise and courage, risking their all to make our island the greatest maritime nation in the world. Shipping for us is our lifeblood. The industry has faced many critical times with great courage and come through them to rise again to great heights. Consider the critical years 1914-18 and 1939-45. We, on an island, depended on our Navy and Air Force not only to keep the enemy away, but to get our trading ships home with supplies, turned round and out for more. The merchant ships and those who manned them went on with their hard and dangerous work never daunted, and never let us down.

We have at present enterprising and far-seeing shipowners who have to find the capital. The shipbuilders, engineers and repairers are second to none. The workers in the yards and shops, and officers and crew are unequalled. These strong forces, combined with those who have the financing, overseeing and managing of ships will always keep us at the top and be ever ready. We hope that free enterprise and handling of our ships will always remain as at present, a free and competitive unit of trade, and so allow us to continue our heritage.

A FINAL settlement has been reached in a dispute which arose about eight months ago at two Sunderland shipyards concerning a line of demarcation, and involving plumbers and boilermakers. It has been agreed that all constructional work should be done by members of the Boilermakers' Society, and all domestic work and work of a similar nature by members of the Plumbers' Union.

THE SHIP SURVEYORS' OUTLOOK

THE CHANGES WHICH HAVE OCCURRED IN HALF A CENTURY

By JAS. YOUNG

President of the Society of Consulting Marine Engineers and Ship Surveyors

ANY YOUTH in his teens starting out on his career today would need to have a vivid imagination to forecast what will be the condition of trade and commerce, more particularly shipping, in the year 2,000. Those who can look back 50 years will agree that during this period there has been a greater advance in practically all things than in any other similar period in history.

Recall the days of 1900 and just prior, when boys used to read the books of Jules Verne—*Round the World in 80 Days*, 30,000 *Leagues Under the Sea*, and such like. We read these, with wonder and astonishment, as we used to read fairy stories, yet now we are in the age of wireless, television, jet propulsion, gas turbines, rocket bombs, long-range guns, atomic bombs, etc. Now we can go round the world in seven or eight days, to Australia in three days, under the sea almost any distance. This is what we have reached in 50 years—what will be the state of things in the next 50 years ?

We start out by being reminiscent, so must go back to 1900. How often our children have laughed at us when we tried to tell them what we had to do in our youth. My apprenticeship was spent partly in the drawing office and partly outside with the practical trades in the shipyard and shops. Hours in the drawing office were 9.0 a.m. to 5.0 p.m. and almost regularly two nights a week overtime until 8.0 p.m. While working outside I had to make a 6.0 a.m. start, which meant leaving home at 5.15 a.m. Night classes had to be attended for two or three nights a week. The remuneration paid during these five years was 4s. per week for the first year, then 5s., 7s., 9s., with 11s. during my last year. These were my standard wages in the drawing office or working in the yard, with the exception of working with a senior plating apprentice on piece work, making such parts as beam knees, shell and tank lugs, etc., and it was a thrill to go and draw pay up to 25s. or 30s. on Saturday. I remember the time when working as a maker to shell platers getting pocket money from them up to 2s. 6d. per week.

Apprenticeship and Training

My apprenticeship, like those of a great many more of my contemporaries, was served at an exacting place and we had to work. The harder you worked the more you got to do, and the more you got to do the greater opportunity you had of gathering knowledge. Nowadays, it seems that the custom for those who take up engineering and shipbuilding as a career is to serve part time in the drawing office and going round the shops, but doing very little in the shops in a practical way, and the remainder of their time at a College or University and so work up for a degree. Personally, I do not consider this to be the best way for training. I would rather see half the apprenticeship spent in a drawing office and half in the various shops working manually at the bench and machines and outside on erecting and basin trials. For theoretical knowledge evening classes are provided. If degrees are wanted they can be worked for at classes or by private study.

Is there not a tendency nowadays for all to cease work at 5.0 p.m. and spend the evenings pleasure seeking ? We had our evenings of leisure, apart from overtime, from April to September, but in the winter months it was overtime and classes, leaving one or two nights for recreation. Today there are too many counter attractions. One is astonished by the crowds, mostly young people, who nightly fill the cinemas and dance halls. What a waste of golden opportunities for study. Fifty years ago the outside working week was 53 hours spread over 5½ days, and every man-jack had to do his best or get out. The foreman and chargemen were respected in their position. Now we have a 44 hours week, but unfortunately not with the same vigour in working. My opinion is that the 53 hours normal week was too long, especially in the short days during November to February. No one could reasonably be expected to work at full pressure on cold dark mornings and late afternoons in badly lit shipyards and drafty workshops. The 44 hours week is too short. The general opinion is that the most satisfactory time is 48 hours per week, and every Saturday to be worked.

Banning of Overtime

The banning, more or less, of overtime is another serious obstacle to progress. Differentiation should be made between systematic overtime and emergency overtime. Systematic overtime, in my opinion, never justified itself, nor ever will, and if it is necessary then arrangements might be considered for an extra shift. Emergency overtime should not be barred. There are numerous instances where ships are held up by the non-completion of some urgent repair or the non-completion of bunkering. I have had experience when a few hours of overtime would complete a job on a Friday night and have asked for overtime to be worked; the management has to approach the men, who in turn have to go to the shop steward, and the latter has to get in touch with their local trade union headquarters. This is all wrong, as it is a deterrent to progress. Yards on the Continent work a three-shift system to keep a steady output and to be free to take more work.

The layout of workshops nowadays is vastly improved compared with 50 years ago. In these earlier days shops were cold, drafty places and more often than not never heated in the winter and poorly lit. I remember clearly in my apprenticeship days when working in a mould and scrieve loft which was at one end of an upper floor in a building covered with corrugated iron, the remaining part being the joiners' shop. This building had no heating and on the cold winter mornings practically no work was done, and everything one touched was icy cold. It took the first quarter to get the blood circulated. Nowadays shops, as a general rule, are well built and equipped with fluorescent lighting and, naturally, and above all, evenly heated. Fifty years ago the outside parts of shipyards, engineering and ship-repairing establishments often got in a quagmire during

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DANISH SHIPPING IN 1950

THE DANGERS OF AN EXCESSIVE DEMAND FOR TONNAGE

By HAKON CHRISTIANSEN

Chairman of the Danish Steamship Owners' Association.

DURING 1950 the Danish merchant fleet continued the steady, deliberate growth which has been the main feature of development since the war ended in 1945. The total tonnage of cargo and passenger ships of 100 tons gross and upwards amounted by November 1, 1950, to about 1.2 million tons gross, representing a net increase of about 65,000 tons during the first ten months of the year. As a basis of comparison it should be stated that in 1945 the tonnage had been reduced to just under 0.7 million tons gross, while in September 1939, when the war broke out, it amounted to about 1.1 million tons gross. In their efforts to restore the fleet since the war Danish owners have emphasised modernisation of the fleet rather than an increase of tonnage. They have, therefore, concentrated their activities on the realisation of a new building programme, while purchases from abroad of secondhand tonnage have taken place only on an insignificant scale compared with the purchases made by other maritime countries.

In 1950 the same trends have been apparent, as the addition of new construction during the first ten months of the year amounted to 24 ships of about 95,000 tons gross, while only six ships of about 5,000 tons gross were bought from foreign countries. This policy is undoubtedly based on the fact that the post-war composition of the fleet as to age had deteriorated considerably in comparison with the 1930s. In 1945, for instance, no less than 25 per cent of the tonnage was more than 25 years old, while in 1939 the corresponding figure was about 12 per cent. For the time being about 19 per cent of the tonnage is still more than 25 years old, but at the same time ships of five years or less make up about 10 per cent of the tonnage. Danish shipping receives no form of subsidies or preferential treatment from the Danish Government, and owing to the high working costs its only chance to hold its own in international competition is with modern and efficient ships.

Contribution of British Shipyards

In the postwar years British shipyards have contributed towards the restoration of the Danish mercantile fleet by delivering a number of valuable new ships of nearly every size and type, from motor coasters to about 200 tons up to tankers of more than 16,000 tons d.w. During 1950 Danish owners received four new constructions from British shipyards. Bartram & Sons, Ltd., Sunderland, delivered the motorship *Hulda Mærsk*, of about 9,000 tons, to the A. P. Moller concern, Copenhagen, and the same owners received the motor tanker *Nelly Mærsk*, of 12,600 tons, from the Blyth Dry Docks & Shipbuilding Co., Ltd. A sister ship of the *Nelly Mærsk*, the *Rosa Mærsk*, is expected to be delivered from Blyth early in 1951. Further, Wm. Gray & Co., Ltd., West Hartlepool, delivered the motorship *Spigerborg*, of 3,500 tons, for C. K. Hansen, Copenhagen, and D. E. Scarr, Ltd., built the motor coaster *Gertrud Kathrine*, of 220 tons, for Mr. Carl G. Christensen, Sæby. Under construction at present at George Brown & Co.'s shipyard, Greenock, is a motorship of about 1,300 tons for the account of Dansk Cementcentral. The vessel is intended for the carriage of cement in bulk from the owners' works at Rordal, near Aalborg, to Copenhagen.

During 1950 Danish shipowners booked orders for a number of new constructions at Danish and foreign yards. Altogether 22 ships of about 115,000 tons gross have been ordered and activities in this field increased considerably over 1949, when only six new ships of 41,000 tons gross were contracted for. The total new building programme of the Danish mercantile marine now comprises ships of about 300,000 tons gross expected to be delivered before the end of 1953. As in a number of other countries, tankers dominate the Danish new construction programme. For the time being 14 tankers of 12-18,000 tons d.w., with a total tonnage of about 145,000 tons gross, are under order by Danish owners. Today the Danish tanker fleet aggregates about 200,000 tons gross, which is about double the size of 1939. When the present programme has been realised in the course of the next few years tankers will presumably make up about one-third of the total tonnage of the fleet, while in 1939 about one-tenth only of the tonnage belonged to this category. Apart from tankers, the majority of ships on order are cargo liners intended for the overseas routes of the liner companies, while the number of tramps ordered is rather low. It is gratifying to note, however, that during the last few months Danish owners have contracted for 10 or 12 modern motor coasters of 400 to 800 tons d.w. each. For a long time the high average age of the Danish coasting fleet has given rise to apprehension, and an increase of this part of the fleet is badly needed, particularly now that competition from German shipping is felt more and more.

In 1950 the freight market was subject to much greater fluctuations than in 1949. During the first six months of the year the trend of freight rates was constantly falling and in particular during the spring months remunerative employment was difficult to find for the small Danish tramps which trade mainly in the North Sea and the Baltic. In April/May owners were forced to lay up several of the ships, and at the same time a number of ships of this type were sold to foreign countries, especially to Germany, where requirements as to equipment and welfare measures, etc., are much lower than in Denmark.

A Marked Change

From the end of July a marked change occurred and the rising trend which was first felt in the Pacific spread to other markets and at the same time was intensified in strength. Of course, the war in Korea had to some degree contributed to this development, though non-American tonnage has been employed only to a very limited extent for transports to the theatre of war, as the Military Sea Transport Service was able, practically speaking, to meet the demand by putting into operation vessels from the American laid-up fleet. The main cause of the rise in freight rates is undoubtedly to be found in the general rearmament, combined with the desire to build up stocks to meet

any critical situation which may arise—a desire which is noticeable all over the world today.

On this background it is with mingled feelings that the Danish shipping industry is considering the present rise in rates. From bitter experience we know only too well that a rising market due to war and rearmament in the long run does not provide a basis of healthy development for shipping. It should be borne in mind also that the rising freight rates do not bring about a corresponding rise in the profit of the owners. Costs are rising in all fields, both as regards running costs, such as wages, bunkers, harbour dues, etc., as well as prices of new construction and repairs. In respect of the liner companies, whose freight rates are changed at longer intervals, the rising market has resulted in a marked increase of cargo, and in order to meet fully the requirements of their regular customers, several of the owners have had to time charter tramps at high rates. In many cases this has meant that the economic result of a round trip has been rather poor, and even in some cases negative.

The shipping industries of the old maritime countries are built up on traditions and experience gathered through many generations, and they are not interested in too big fluctuations in the freight markets, not even when the trend is rising. The policy of flag discrimination which has been manifest since 1945 to an increasing extent, especially in a number of overseas countries, is undoubtedly caused by the shortage of tonnage felt during the war. This shortage of tonnage gave rise to efforts in these countries to establish a national merchant navy at any cost, to the detriment of the natural distribution of work on an international basis. Too sharp a rise in the freight rates may, it is feared, further encourage the discriminatory policy and make

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LLOYD'S REGISTER OF SHIPPING

SUCCESSFUL FUSION WITH THE BRITISH CORPORATION: OVERSEAS COMPETITION

By SIR RONALD GARRETT

IT WAS in March 1949 that agreement was reached between the British Corporation and Lloyd's Register for the fusion of the two Societies. The fusion was carried through in May 1949 and has been in operation for about eighteen months. The moment is, perhaps, opportune to take stock of the position and ask ourselves how this very important development in the shipping industry of this country is working in practice. Naturally I approach this question from the point of view of those responsible for the undertaking. Of its impact on the industry others are better able to judge, though I make a few comments from this angle further on. Meanwhile I can say that we have had no complaints, and some expressions of commendation.

In any amalgamation of two large undertakings it is usually problems of personnel which prove the most difficult. In this case we were in a fortunate position, because the accession of the B.C. technical staff was counterbalanced by the additional ships and the additional work which they brought with them. As a consequence the welding of the two staffs has been relatively simple and completely successful, and has not entailed any case of hardship, much less of injustice. There was very little redundancy, and with the exception of the few who were ripe for retirement at the time of the fusion—practically the whole of the B.C. staff has fitted comfortably into the organisation. This problem required careful handling in Canada, where, before the fusion, the B.C. enjoyed a special position. I have recently returned from a visit to that country, and I was glad to find that the united staff was working in complete harmony. Here and everywhere the staff of Lloyd's Register feel that in their ex-B.C. colleagues they have gained a most valuable addition to the talent and skill of the Society.

The same is true of our Committees. The advent of B.C. members has temporarily swollen our numbers, but it has brought with it new contacts and a contribution in experience and wisdom which we greatly value. Nowhere is this more marked than in the Technical Committee. This Committee was recently reorganised, with the help of many admirable suggestions from the B.C. members. Mr. Innes, the former chairman of the B.C., is now joint chairman of the Technical Committee with Sir Frederick Rebbeck, and Mr. Charles Connell and Sir Philip Johnson are vice-chairmen respectively on the shipbuilding and engineering sides. The Committee is unique in being the only technical body in the country on which all the multifarious industries and interests concerned in shipbuilding and marine engineering are represented. I feel sure that it will prove of great and steadily increasing value to British shipping.

Chairman of Lloyd's Register of Shipping

The work of unifying the rules and procedure goes steadily forward. Our objective is complete unification, but in a matter of such complexity we can only advance by stages. Each new rule approved now becomes a "unified" rule, and replaces the corresponding rules of each of the two Societies. In his article in THE SHIPPING WORLD last year Mr. Shepheard said that new rules for tankers and piping were under way. These rules are now in operation, and revision of the Rules for Heavy Oil Engines and their auxiliaries and the list of engine spare parts are in hand. So, too, in the matter of survey procedure. Small differences still survive, but these are not fundamental, and are being gradually ironed out. Before very long the procedure will be uniform, and will apply whether a ship is classed ✠100A1 or ✠100A1.

So much for the domestic side of the fusion. What of its impact on the outside world? Perhaps the best way to approach this is to recall the arguments which were put forward by those few who opposed the fusion, and ask ourselves whether the dangers they foresaw have materialised. These opponents of fusion had only two serious arguments to advance: that it would be creating a monopoly with the attendant evils of bureaucratic complacency and rigidity, and that it would encourage and facilitate nationalisation. No one will deny that monopoly has its dangers. But my answer now, as it

was at the time, is that in this case there is no monopoly. It is true that almost the whole of British shipping is classed with Lloyd's Register; but that is only one side of the picture. If Lloyd's Register class were confined to British ships the Society would be a very different, and much less effective, body than it is. In fact our British tonnage is equalled by our tonnage under foreign registration. So that even if we assume—as I hope we may—that the predilection of British shipowners and shipbuilders will always be for Lloyd's Register, for the other half of our business we are in keen competition in a field which is equally open to other classification societies. Indeed, in America, Norway and France we are at a disadvantage in having to compete with a national classification society, which naturally makes a strong appeal to the shipowners of the country. And in America and Italy we also have discriminatory legislation to cope with.

To hold our own in the foreign field we have to keep on our toes. We depend on our merits; and the fact that in countries where the scales are not weighed against us 50 per cent of the shipping carries our class indicates, I hope, that we have some merits to depend on. Fifty per cent is not too bad, but it is a long way from being a monopoly. It still leaves 50 per cent (and in some countries much more than 50 per cent) in other classifications; so L.R. has every incentive to keep wide awake. Moreover, pins are from time to time stuck into us, and pins are equally enlivening, whether the hand which applies them is British or American, French or Scandinavian. We continually have the virtues, and what I might call the greater plasticity, of our competitors thrown in our teeth. So, when we take—as we sometimes have to take—decisions which are unpalatable to owners, we must be very sure that they do not arise from mere obstinacy, but that they are, in fact, an accurate expression of the best opinion in the industry as reflected in the General Committee. This Committee is our sounding board by which the voice and opinion of every shipowner and shipbuilder can be heard. And this in itself is a safeguard against the twin dangers of dogmatism and self-satisfaction.

Danger of Nationalisation

Finally, a word as to the danger of nationalisation. That sword hangs over all our heads these days, and it is difficult to say what strengthens and what weakens the thread by which it hangs. Efficiency makes nationalisation easy; inefficiency gives an excuse to the nationalisers. Coal was nationalised because it was said to be inefficient; steel in spite of the fact that no such charge has been brought against it. Meanwhile surely our job is to make our organisation as efficient as we can, and to run it in the interests of the shipping industry. For my own part I find it difficult to believe that any Government would be so rash as to tamper with a body that distributes no profits, earns foreign currency by exporting its services, and—which is of far greater value—also exports British ideas and British standards throughout the maritime world.

MARITIME PROBLEMS IN BELGIUM

DIFFICULTIES AHEAD FOR SHIPPING AND SHIPBUILDING

By a Special Correspondent

WHEN reviewing Belgian maritime problems one should always keep in mind that, contrary to what is happening in other Atlantic countries, merchant shipping in Belgium has always received only secondary attention and interest from the authorities and public opinion. Belgian shipowners have never had the backing that was of so paramount an importance to their British, Dutch and Scandinavian competitors, and have always had to manage on their own. After the war attempts were made to change this situation. Parliament passed a Bill providing for the establishment of a fund to promote shipbuilding and shipping.

However, no law can have results if it is not the consequence of a duly considered policy, and Belgium completely lacks such a policy. In the absence of a shipping policy by the responsible authorities, several Belgian ships had to be laid up in the course of the year, since their owners were no longer able to compete in the international market. The change in the international situation and the war in Korea did, however, improve conditions for the Belgian merchant fleet in the second half of the year.

First among the factors that had, especially in the first six months, a depressing effect on shipping, was the low level of freight rates. Secondly, the devaluation in September, 1949, proved to be a great handicap for Belgian shipowners. The freight rates of the regular lines, quoted in sterling, were not adapted to the new exchange rate between the pound sterling and the Belgian franc. Inevitably this resulted in a lower income for Belgian shipowners. Moreover, the increasing prices of bunker fuel raised operating costs to such an extent that the revenue from freight was insufficient to cover the owners' costs, let alone to allow for depreciation or for the paying of a small interest on the capital invested in the fleet. Apart from international influences, Belgian owners had to overcome difficulties of a more national nature. They were refused—according to tradition—the national support necessary to combat international difficulties. Social costs could not be reduced in any way; and a reduction of taxes was requested in vain. The improved conditions in the international freight market in the second half of 1950 made several owners determined to send back their ships to sea. The situation in the port of Antwerp improved to such an extent that during the last months of the year there was almost a shortage of tonnage. The problems mentioned above consequently lost some of their urgency, but they continue to exist and Belgian shipowners remain much concerned with regard to the future.

At the beginning of 1950 the Belgian merchant fleet numbered 92 ships totalling 407,191 tons gross. At the end of the third quarter this number had increased to 95 ships, totalling 427,875 tons gross, and the number of motor vessels for the first time exceeded that of steamships, comprising 46 steamships of 201,600 tons gross, and 49 motor vessels of 226,275 tons gross. Among new ships for the Belgian fleet were the 10,825 tons tanker *Purfina Congo*, built in 1949 by the John Cockerill shipyards at Antwerp for Petrofina, Ltd.; the 1,278 tons motor vessel *Alfonso*, built at Bruges for the Hermans Shipping Company; and the new packet boat for the Compagnie Maritime Belge, the 10,811 tons motor vessel *Baudouinville*, which, with the other *Ville* ships, runs on the Belgian Congo route. It is to be regretted that a number of ships that had been in operation only for a short time had to be taken out of service. They were chiefly former German ships, put at the disposal of Belgian owners by the Government after some alterations had been made. Most of these ships were built during the war with inferior materials. The new owners accepted these ships to replace tonnage lost during the war, but soon they were forced to take them out of service as they could no longer economically justify themselves.

The Belgian shipbuilding industry includes only two yards of international importance, both being well known. The smallest, the Boel yard at Tamise, was fully engaged during the entire year on the Soviet

Russian order, placed with this yard in 1948. This order includes five cargo vessels of 3,100 tons and seven trawlers of 68 metres length. These ships will be completed in the course of 1951. The Cockerill yards at Antwerp used their full capacity for the completion of orders from the Compagnie Maritime Belge and started the construction of several tankers, including three for American, one for Portuguese and one for Belgian owners. Moreover, they were engaged on an order for a 21,000 tons liner for Portugal. Notwithstanding this great activity Cockerill were unable to acquire as many new orders as in previous years. This is mainly a consequence of the high Belgian price level, resulting in most cases from too high wages. This makes it necessary for Cockerill and the other Belgian shipyards to step up productivity and to rationalise. The board of Cockerill has adopted a five-years programme for re-equipping the yards, three-quarters of which has already been realised. This is the only way, not only for the shipbuilding industry but for all other Belgian industries, to be able to meet foreign competition.

The high price level also applies to the Belgian ports. High wages have resulted in increased port and handling charges which, to quote an example, make Antwerp one of the most expensive ports on the Continent. Notwithstanding, traffic at Antwerp is moving upwards, the high costs of handling being compensated by the quick turnover. During the first ten months of 1950 7,848 ships, totalling 14,440,900 tons net, arrived at Antwerp, compared with 7,956 ships, totalling 14,476,087 tons net, in the first ten months of 1949, and 9,768 ships totalling 16,600,303 tons net in the same period of 1938. This year's figures were influenced by the strike that lasted the entire month of August, but the total figures for 1950 are expected to exceed those for 1949. The general trends in Antwerp show a reduction of incoming traffic which is not completely compensated by outgoing cargoes. In the course of 1951 the new petroleum basin at Antwerp will be put into service. The new year will also see a beginning made with the construction of a second sea lock and, if funds permit, of a new dock.

THE SHIPPING FEDERATION

CHANGES IN SIXTY YEARS

By BASIL SANDERSON

Chairman of the Shipping Federation from 1934 to 1950

My own firsthand knowledge of the work of the Shipping Federation goes back only to 1923. But I know from those who have firsthand information something of the work and character of the Federation in the first quarter of this century.

The Federation started in 1890 in a small way and as an organisation designed essentially for defence. That was still true when the 20th century dawned. The main task—indeed almost the sole task—of the Federation at that time was to ensure that shipowners could employ their crews free from Union interference, and that non-union men should not be menaced by intimidation. It was exacting work and it was work which inevitably led to bitter clashes and exchanges, but these were common to many industries at the time. There was no question of the Federation being authorised or indeed desiring to impose a scale of national wages or general conditions of service. Still less was there any question of the Federation negotiating with any body of seafarers to achieve that object. The Federation staff, apart from a handful of officials who were concerned with policy making, consisted for the most part of strongarm men or tough guys, many of them ex-seafarers. Dealings with any Government department were few and far between and when they did take place were apt to be conducted in a spirit of armed neutrality, if not acrimony.

Story of 60 Years

In all these respects the passing of the years has brought fundamental changes. But it would be entirely wrong to think that the early years were wasted years. Without the experience gained in them I think it most unlikely that we should have reached in shipping our present state of happy industrial relations.

What then, are the principal changes which have been brought about in the first half-century in the work of the Federation? This is the Federation's diamond jubilee year and a history of these 60 years has already been published. It gives a comprehensive and, I think, comprehensible account of the Federation's development, but if I were asked to pinpoint the changes I would do so as follows:—

(1) The guiding principle of the Federation in its industrial relations is now negotiation and effective conciliation. This does not mean that on the National Maritime Board there are no stormy passages and differences of view, but both sides are determined in the end of the day to settle their own disputes in their own way and they have done so effectively over the last 30 years.

(2) Crew wages and conditions of service have enormously improved and they are now on a national basis. Food and accommodation, provisions against unemployment, and social insurance generally have also improved almost beyond recognition. And all this for 30 years at any rate has been secured amicably and without upheaval within the industry.

(3) There has been an enormous development in the constructive functions of the Federation. These may be said to have started quite early in the century when the Federation undertook the handling of workmen's compensation claims on behalf of the clubs and of individual shipping companies. This feature of the Federation's work is now fading out under the new tripartite social service scheme. But what might appear at first sight to have been a disrupting influence in the relations between the Federation and the seafarers' organisations did in fact prove to be harmonising.

In the last quarter of the century the Federation at Chief Office—and more particularly in its 51 District Offices—has performed day-to-day individual services

for the shipping companies. Apart from the work of regulating wages and general conditions of service in close cooperation and agreement with the seafarers' organisations, the Federation's constructive work is principally in the training of seagoing personnel, in the supply of crews, in attracting the best type of seafarer, more particularly by giving some measure of security of employment through the Merchant Navy Established Service Scheme, and in a wide field of welfare.

(4) The working with Government departments is now close and constructive. The field, here again, has greatly extended. It used to be confined to the Mercantile Marine Department of the Board of Trade and occasionally the Home Office. Now the cooperation is principally with the Ministry of Transport, but also with the Admiralty, the Ministry of Labour and National Service, the Ministry of National Insurance and the Ministry of Education. Here again it is the difference of approach that is fundamental. The parties to the discussions do not now meet predisposed to vigorous disagreement, but determined if possible to come to a practical working agreement. But, as on the National Maritime Board, it would be quite wrong to suggest that there are never strong differences of opinion. They are, however, usually reconcilable.

District Organisation

(5) The District organisation of the Federation is of the utmost importance in understanding its working. The Districts are not separate units loosely affiliated to a central body, but are an integral part of the Federation as a whole. Indeed, it is from the districts that the Federation derives its present strength. The District Shipowners' Committees are strong and the whole system is essentially democratic. No major decision is taken without full consultation with the District Committees. Shipping would have become effete indeed if every shipowner agreed with every other shipowner on every subject that came before the District Committees. There is no rule of unanimity and consequently no paralysing veto, but a great measure of agreement is invariably achieved.

(6) The essential requirements in selecting staff have also changed. They have still to be ready on occasion as was shown in the Communist inspired and short-lived Liverpool strike in 1947 to fight back as their predecessors did. They have to understand the needs and psychology of seafarers and they have to carry out administrative tasks. The proof of success is that whereas at the beginning of the National Maritime Board in 1920 there had to be many meetings of the District Boards and many appeals from the District Boards on individual cases, the vast majority of these are now settled locally by the Port Consultants, who are the local officials of the Federation and of the National Union of Seamen respectively.

(7) The industry has been fortunate in having strong and responsible leaders on both sides of the negotiating table. In a short article it is impossible to pick out individuals, but there has been a long unbroken tradition of powerful leadership.

The Price of Peace

But it is all very well looking at the past. While the industry can look back with pride upon its industrial relations for the last thirty years, this is no time for smug complacency. We have deserved 30 years of happy industrial relations because we have earned them. We must continue to earn them. And we must be ever watchful at a time when there are so many evil forces, none the less dangerous because often unseen, working to disrupt industrial peace. In industrial relations, as in other spheres, the price of peace is "to slumber not, nor sleep."

PORTRAIT OF A SHIPOWNER

(*Continued from opposite page*)

valuable material for making skis. During his few leisure hours Mr. Høegh plays golf and goes sailing.

A man of so many interests is hard to contact except on business, but those succeeding in obtaining an interview will find a personality full of good humour and sharp wit. He is easy to speak to, ready to listen, and has the readiness of a great man to acknowledge greatness in others. In his conversation he does not hurry but seems to have lots of time. When asked how he can get through all his work his answer is typical of the shipping man and economist, Leif Høegh: "The secret is the correct disposal of time. I have obtained first-class men to assist me, with whom I have a short conference every day, but only on important matters. Nobody is allowed to come to me with details." This is not the whole story, however, for Mr. Høegh still continues the long working days of his youth. At his home in Oslo he has an office where, from 9 to 11 a.m. every day, he dictates letters and goes through correspondence with his private secretary, and this work is continued again in the afternoons and evenings after conferences and work at the main office. His success is an outstanding example of what can be done even in Europe when drive and initiative are left to develop free of political hindrances.

DANISH SHIPPING IN 1950

(*Continued from page* 35)

it even harder to eliminate this unfortunate practice.

The Danish merchant marine earns the greater part of its freights trading between foreign ports, and the Danish shipping industry, therefore, deeply feels the menace of the increasing flag discrimination. In particular do the so-called 50 per cent clauses give rise to apprehension. Danish shipping admits the special character of the 50 per cent freight clause in Marshall Plan, and it is difficult to criticise it considering the fact that the greater part of Marshall Aid takes the form of gifts. Nevertheless, the stipulation is regrettable particularly because it sets up a dangerous example to other countries; and indeed countries like Argentina, Brazil, etc., have in several cases included 50 per cent freight clauses in their commercial treaties during the last few years. Recently the Chilean Government has decreed that 50 per cent of all imports into Chile from countries served by Chilean vessels must be carried in vessels operated by Chilean steamship companies. This measure also is a serious menace to Danish shipping interests.

Flag Discrimination

The Danish shipping industry supports wholeheartedly the international efforts displayed during the last years, particularly through the International Chamber of Shipping and the International Chamber of Commerce, to overcome flag discrimination. With gratification we have seen during 1950 that these efforts have been taken up on a more official basis by O.E.E.C. in Paris as part of that organisation's work to reduce trade barriers between the countries. The rules laid down by the Maritime Transport Committee of the O.E.E.C., with a view to the liberalisation of shipping transactions, were confirmed by the Council of O.E.E.C. on May 3, 1950, and they bind the participating countries to go in for free circulation of shipping and not to enter into trade agreements containing discriminatory measures. It is much to be hoped that the United States will join these efforts.

The expectations of the Danish shipping industry for 1951 are first and foremost based on a relaxation of the present tension in world politics, so that the liberalisation efforts to an ever increasing extent shall become manifest in world economics.

PORTRAIT OF A SHIPOWNER

MR. LEIF HÖEGH AND HIS SUCCESS IN SHIPPING

By a Special Correspondent

Mr. Leif Höegh

AMBITION and hard work will, as a rule, produce good results; when these two faculties are coupled with a keen sense for what is vital in business and in intercourse with fellow men, the results are usually outstanding. Mr. Leif Höegh, head of the shipping firm of Leif Höegh & Company, of Oslo, managers of shipping lines round the world and of tankers, has proved that he combines all these faculties, for in little more than a score of years he has become one of Norway's most successful shipowners.

Today, although Leif Höegh is well known among shipping people in Norway and all over the world, and among many politicians as a good negotiator at international conferences, little is known of the man himself. Members of his office staff will tell you that they like and admire him. If they are asked why, they will answer because he is hard working, but most likely the real reason is that in the back of their minds they know that Mr. Höegh is an extremely capable business leader and they have absolute confidence in his decisions.

Born in Oslo in 1896, the son of a business man connected with the timber trade, Leif Höegh had a good education, including a good University degree in economics, and several years of training abroad, especially in the United States. On his return to Oslo, he joined the then shipping concern of Wilh. Wilhelmsen, where he obtained valuable experience in operating ships; but he had greater ambitions. To have ships of his own was his goal, and after eight years with the Wilhelmsen firm, he started his own company in 1927, at the age of 31. Mr. Höegh had worked hard all this time to prepare himself for the work of an independent shipowner, but his efforts were not to end here. The business demanded his attention early and late, Sunday and Monday, but hard work paid well, and in 1929 he was able to form new companies and five large ships were ordered in quick succession.

Early Success

By this time the real spade work had been done. Monied people had seen the success of the then only 33 years' old shipowner and were willing to support him. Mr. Höegh himself considers his training in economics as the basis of his success, and he never lost sight of economics despite his many other interests. He feels at ease among the modern economists, although he often differs from their point of view. For several years he has been a member of the board of the Association of Economists in Oslo and it was mainly a careful study of trade cycles that in 1929 made him order those five ships, which he at once chartered to various oil companies for several years, thus availing himself of the high tanker market rates ruling at the time. Later, with the profits he thus obtained, he ordered new ships, in the middle thirties, when building costs were at the lowest level since before 1914. The ships then ordered were, however, not chartered out. As soon as they had been delivered they were employed in the tramp market, where high freight rates were ruling towards the end of the thirties.

In 1937 Mr. Höegh opened his first liner service in cooperation with two foreign companies. He was invited to do so by a liner agent in New York by whom he had been employed as a young man. The liner fleet, however, suffered severely during the war. Several of the finest ships were lost, but Mr. Höegh managed at an early date to sign contracts for new ships that were delivered in 1947 and 1948. Now an extensive liner service is carried on between the west coast of the United States and Canada and the Philippines, Indonesia, India and the Persian Gulf, and from the east coast of the United States through the Mediterranean and the Red Sea to the Persian Gulf, India and Australia. At present the company's fleet consists of 11 large cargo liners, five smaller ones and six tankers, carrying altogether some 210,000 tons deadweight. The fleet is manned by just short of 1,000 men and the head office in Oslo has a staff of about 60, while agents all over the world and a branch office in New York help in the smooth operating of the ships.

Advocate of Freedom

Mr. Höegh, like all Norwegian shipowners, is a keen advocate of freedom in trade and all intercourse among nations. His eyes are turned on events all over the world and he does not like to take part in home politics. However, although such an extensive business would demand the whole attention of any ordinary man, Mr. Höegh has not declined to take up other duties in the interest of the whole shipping industry or of the nation. Before the war he was elected a member of the board of the Norwegian Shipowners' Association and he represented Norwegian shipping interests in London in the autumn of 1939, when extensive negotiations were carried on with the Minister of Transport, negotiations which led to the later famous "scheme" charterparties, as the contracts were called, under which Norwegian vessels were chartered to the British Government.

Towards the end of the war the Norwegian Government in London needed shipping men to take part in the international conferences then taking place to plan post-war shipping services. Mr. Höegh, who had, like so many Norwegian owners, been at one period under arrest by the Germans, was asked to come to England. He told his staff that he was going for a skiing trip in the mountains, but the next they heard of him was that he had arrived in Sweden and was on his way to London, where he was later made chief of the Norwegian delegation to the United Maritime Authority. Mr. Höegh has represented Norway on other committees working under both U.N. and O.E.E.C. auspices, and he is at present chairman of the Norwegian America Line, vice-chairman of the Christiania Bank & Kreditkasse, and a member of the board of the local Esso company. These, however, are not the only activities of this energetic shipowner. During the war he managed his country estate near Tönsberg, where he created a modern farm and put much work into the cultivation of an ash wood, a kind of tree that grows only sparsely in Norway, but gives

(*Continued on opposite page*)

THE OIL INDUSTRY AND SHIPPING

VITAL FACTORS IN THE CHANGED POSTWAR POSITION

By W. G. WESTON*

RECENTLY a good deal of attention has been focused on the tanker section of the shipping industry, which is in a period of considerable expansion. The business available for tankship owners, the value of the tanker section of the industry to agencies and suppliers looking to ships for their business, and the importance of the growing tanker fleets as offering employment and careers for seagoing personnel—all these are reflections of the expanding oil industry in terms of demand for the sea transport of oil. This is far from being the only angle of approach to the subject matter of this article, but it is naturally the first.

The world's available tanker tonnage has increased since before the last war by 60 per cent in tonnage and over 80 per cent in terms of carrying capacity, and is still increasing. Meanwhile, between 1938 and 1950, the world's production of crude oil has just about doubled. Through that period, the nature of the demand for tankers has, however, undergone considerable change within the general increase in demand due to the world's expanding production and consumption. Two major facts emerge from a comparison between the world's tanker traffic then and now. The Middle East has developed as a major exporting area and the United States from being an exporter of oil has become a net importer. While total movements of crude and products from all exporting areas outside the U.S. increased by about 150 per cent between 1938 and 1949, exports from the Middle East increased by nearly 400 per cent. Imports into the U.S. went up by over 300 per cent in the same period.

Longer Tanker Hauls

Refinery capacity in Western Europe amounted before the war to about 19 million tons. It is expected to expand to nearly 60 million tons by the end of 1952. Practically all the crude oil required for these refineries is expected to come from the Middle Eastern areas, whereas before the war the European refineries were to a substantial extent supplied from the U.S. Gulf. The effect of this longer haul upon tanker demand is illustrated by the fact that nearly 30 per cent more tanker carrying capacity is required for shipments from the Persian Gulf to N.W. Europe than for the same quantity from the U.S. Gulf.

Another postwar development involving longer hauls is the shipment of Middle East crude and products to the Western Hemisphere, which movement has recently attained a volume of no less than 40 million tons a year. In the case of products, the movement to the U.S.A. from the Persian Gulf instead of the Caribbean area increases tanker demand by some 300 per cent. It is to be expected that the present pattern of oil movements will continue in the next phase, but it is important for tanker owners to bear in mind the sensitivity of demand for tankers to any modification of this pattern, even though there may be no slackening in the world's total demand for oil. Given reasonably favourable economic and political conditions, the world's demand for oil may be expected to continue to grow through existing and new outlets, but the would-be forecaster of tanker demand must approach the matter with due allowance for marginal fluctuations in the direction of traffic.

Effect of New Pipelines

Another cautionary note is to be sounded particularly in relation to the transport of the Middle Eastern supply of oil. It is well known that overland pipelines are an important factor in this area. Pipeline development is natural and essential to bring effectively some sources of Middle Eastern oil into consumption, e.g., from Iraq to the Eastern Mediterranean. More directly influencing the tanker industry is the possible development of pipelines to shorten the haul from the Persian Gulf into the Eastern Mediterranean, comparable to the line now in operation from Abqaiq to Sidon. This line (Trans-Arabian Pipeline), now in operation, can replace some 100 T2s when running at maximum capacity.

A number of factors will affect future decisions on pipelines, but prominent among them will be the cost of transiting the Suez Canal. The economies of transportation by tanker, particularly if account is taken of growing dimensions of crude oil carriers, can be fundamentally affected by the incidence of Suez Canal dues. The cutting of the Suez Canal was a triumph of far-sightedness in a somewhat lukewarm atmosphere. In the subsequent maintenance and development of its activity the Suez Canal Company has displayed the same spirit of imagination which inspired its construction. The tremendous growth of tanker transportation through the Canal from $32\frac{3}{4}$ million net Suez Canal tons in 1946 to a possible 80 million tons in 1950 gives scope for an imaginative policy as regards the adjustment of dues over the coming years, which can have a vital bearing on the future of tanker transportation.

New Tanker Construction

With these cautionary notes, and others which will be familiar to all shipowners in such matters, it is nevertheless necessary to view the tanker section of the shipping industry as still in a stage of actual and potential expansion. Orders already placed in the shipyards worldwide will result in new tonnage at the rate of some 2,000,000 deadweight tons annually during the next year or so, and numerous orders have been placed even further ahead. The tanker industry is spending on new building in U.K. and Western European yards alone at the rate of over £60,000,000 a year. Some of this expenditure is for the building programmes of the major oil companies through their tanker owning organisations, but the larger proportion is for independent tanker owners. All but an insignificant number of these latter tankers, however, are already fixed on period charter, so that to foster this enormous programme, and in addition to their own direct orders in the yards, the major oil companies are committing themselves to expenditure on charters extending through the greater part of the next decade.

The Part Played by Brokers

No account of the relation of the oil industry to shipping would be complete without reference to the important part played by the tanker brokers. They form an essential link between shipowner and charterer, and in addition they have special functions to perform peculiar to the oil industry. It has long been a practice to seek an independent and authoritative award on a freight rate for some particular purpose from first-class brokers, and in the world as it is today this function has many ramifications in connection with contracts and controls. Some national pride can be taken in the worldwide reputation of the leading London brokers, which is of great national importance and value. Through them and through other important tanker broking centres elsewhere, especially in New York, contact can be kept with available tanker tonnage everywhere.

The oil industry is not only a demander of tanker services. It is a customer of shipping generally on a

* General Manager, Marine Department, Anglo-Saxon Petroleum Co., Ltd.

large scale for the shipment of packed products such as lubricating oil, bitumen, paraffin wax, etc. Furthermore, the oil industry is spending enormous sums of money in exploration, production, refining and marketing overseas, all of which are expanding in the effort to supply the world's demand. All this requires the shipments of tools, equipment, construction and transport materials and supplies of all kinds, to say nothing of the demand for shipping space which is created as a result of the social and economic development in the oil producing centres.

By far the greater part of the world shipping industry now looks to the oil industry for its source of power. Oil-fired steamers and motor vessels together accounted in 1949 for 79 per cent of the world's total shipping, compared with 54 per cent in 1939. Of the tonnage launched in the years 1946 to 1949, 95 per cent was oil driven. Oil is preferred on account of its easier handling facility, worldwide availability and economy in use. The development of oil products has also facilitated the advances in marine propulsion which have been made in the last few decades, partly through greater efficiency in lubrication and partly through the adaption of marine engineering technique to the range of possibilities from oil as power. An instance is the great development of the motorship in the last 25 years, in respect of which current experiment and experience suggest advantages from the use of heavy or high viscosity fuel oils. Concurrently, modern experience in the use of high temperatures, steam and increased pressure is increasing the attractiveness of the steam turbine, either as a means of direct propulsion or as a means of generating electric power for the drive. It now seems that even in the medium ranges of power (say 7/8,000 s.h.p.), the modern oil-fired watertube boiler with steam turbine is competitive, while for the bigger and faster ships now demanded for many types of shipping trade, including oil transport in bulk, the turbine appears to be most favoured.

From these and other angles it can be seen how close are the links, direct and indirect, between the oil industry and shipping, and how deeply the world shipping industry is affected by the fact that we are living in an expanding oil age.

COAL AND OIL IN 1950

DEVELOPMENTS DURING THE YEAR

THE MEMORY of 1950 that will remain longest in the minds of all those connected in any way with the export coal trade is likely to be the disappointment caused by the failure of the export programme, after a promising start in the early months of the year. This failure was caused by the inability of the National Coal Board to increase the rate of production as much as had been hoped for, and by a sharp increase in the demand for coal from the home market, both industrial and domestic. The troubles of the Coal Board are due in no small measure to the lack of manpower in the pits. Since the "ring fence" round the industry was removed the number of men available has consistently declined, and the manpower engaged in coal mining is now at its lowest level since the start of the century. Although the many operations in the cutting, carrying and cleaning of coal are becoming increasingly mechanised, many British mines are far from ideal for the use of mechanical methods, and the adoption of these has brought about no more than a stemming of the losses which would have otherwise have been caused by falling manpower.

Increased Home Consumption

The increase in home consumption is perhaps surprising, as it had remained roughly constant for a good many years before the war, with technical improvements in fuel consumption no doubt serving to balance the increase in the numbers of industrial and domestic consumers. Although further technical advances are continually being made, they are no longer sufficient to maintain equilibrium. It is not only a case of developing improved equipment or technique, but of encouraging its adoption. This, however, is one thing that today's high prices may serve to bring about.

It was in June that it first became obvious to all, through the sudden reduction in exports, that the calculations had gone astray. Until then the level of exports had been consistently above that of 1949, and there was every prospect of a good total being reached by the end of the year. After that, however, the decline was gradual but steady, and before long the total for the year to date had fallen behind the corresponding 1949 figure. At the time of writing it appears that the final figure of exports and bunkers for the year will be little more than 17 million tons.

It was late in the year when the decision was taken to import coal in order to meet outstanding obligations, at least in part, and many people felt that it might profitably have been taken sooner. As it was, the only country with coal available was the United States, and the necessary tonnage to carry it across the Atlantic had—and indeed is still having—to be secured at a time when freight rates are high. It is hard to avoid the conclusion that an unpalatable and politically harmful decision was postponed until it became unavoidable. The coal which is now being brought into this country is carrying a freight rate of more than £3 per ton, which makes it extremely expensive. This price difference will presumably be borne by the Coal Board. In addition, the Board will suffer through the loss of the higher price which it is able to obtain for exports. In 1949 this difference, amounting to about £1 per ton, was almost sufficient over the year to provide the whole trading profit of the Board.

The lack of coal exports has caused much hardship in coal exporting ports. Those on the North East Coast have been able to make up some of their lost trade through the increase in coastwise shipments which has resulted from the greater home consumption in the south of England, and one port, Blyth, has been to maintain more or less the prewar level of shipments. The ports of South Wales, however, are not so fortunately placed in this respect. While imports of coal are coming into the country they are able to secure some of the resulting business, but this is obviously only a temporary nature. Even if the Coal Board is unable to do much more than meet the demands of the home market this year, it will stop the importation of coal as soon as possible. The position of the South Wales ports, in fact, is far from pleasant, and attention has been drawn to this fact by a number of speakers in the course of the year.

Effect of Freight Rates

The lack of outward cargoes of coal would have been a severe blow to the owner of tramp tonnage were it not for the generally high level of freights. It has necessitated many outward voyages being made in ballast that would otherwise have been made with coal cargoes. The very absence of coal, however, has done much to keep up rates. Not only have many ships had to be chartered to bring coal to the United Kingdom, but since bunker stations abroad are now being supplied from foreign sources, special cross voyages are having to be made to carry their coal, instead of it being carried in outward bound vessels

which would in any case be passing the station. Furthermore, the fact that it is now necessary for coal-burning ships to bunker up for the round voyage at their outward destination, instead of in this country, means that on the homeward leg of the voyage, when they are fully loaded, they are compelled to carry a larger weight of bunkers than would otherwise be the case. It was estimated by Mr. J. S. Maclay in the House of Commons that for this reason alone the use of 11 coal-burning ships would be necessary where previously ten would have sufficed.

But although the number of coal-burning ships in British ownership is still considerable, due in the main to the large amount of war construction tonnage in service, the proportion of tonnage burning coal continues to diminish as new vessels are completed. The rate at which the changeover takes place naturally depends on the rate at which new ships are built, and more particularly on the rate at which dry-cargo ships are built, as it is in this class of tonnage that an oil-burning vessel is most likely to replace a coal-burner. After an almost complete absence of orders for this type of ship for several years, rising freights and the prospect of rising costs have combined to bring about a sudden flow of orders, the effects of which should be visible in two or three years' time. Another factor affecting the proportions of coal to oil burners is naturally the rate at which ships of the one type are converted to the other. While a good many of these conversions have been carried out, with good results, it is perhaps surprising that it has not been more generally done.

Rapid Expansion in Oil Industry

In contrast to coal, every aspect of the field of oil shows continuous and rapid expansion. The growth of crude oil production has not been quite as spectacular as in some recent years, but in some cases, notably in Arabia and Canada, it has been held up pending the completion of pipelines, while in Iraq the existing pipelines have been rendered useless by political conditions in the area. The more spectular achievements have been in the fields of transport and refining. Operations have been able to start at a number of the new European refineries which are under construction, and several of these will reach their full throughput in the course of this year, as units are completed. Operations started during 1950 at the Shell refinery at Shell Haven, the first cargo of crude being brought in by the Anglo-Saxon tanker *Velutina*, first of the 28,000-tons tankers to be completed in Great Britain, on her maiden voyage from the Middle East. Construction work was started on a new Anglo-Iranian refinery on the Isle of Grain, at the mouth of the River Medway, and work was also progressing at six other refineries throughout the country. When present programmes have been completed, the Shell group will have major refineries at Stanlow on the Manchester Ship Canal, and at Shell Haven in the Thames estuary; Anglo-Iranian will have them at Llandarcy in South Wales, at Grangemouth on the Firth of Forth, and on the Isle of Grain; two American companies, Esso and Caltex, will have large refineries on Southampton Water; and another, the Vacuum Oil Company, will have a half share with Powell Duffryn in a new refinery which is being built at Coryton, on the Thames. On a smaller scale this development could be matched throughout Europe.

In December an important pipeline was completed. This was the trans-Arabian pipeline, which carries crude oil from the Saudi Arabian oilfields to Sidon, on the Mediterranean coast. This pipeline, which is just over 1,000 miles long, shortens by about 2,500 miles the distance which oil from the Persian Gulf area has to travel in order to reach Europe. It has been estimated that this shortening will save the equivalent of about 62 tankers of T2 type in continuous operation. This is not the only advantage of the pipeline, however, as it also saves the payment of Suez Canal dues. In recent years oil tankers have formed a large and increasing proportion of the traffic passing through the Canal, and the saving of these dues is an appreciable factor to be taken into account in considering the economies resulting from the use of the pipeline. Another interesting pipeline on which work is progressing is that from Loch Long, on the Clyde, to the Anglo-Iranian refinery at Grangemouth. Very large tankers will be able to dock in Loch Long, and will be saved the journey round the south and east coasts of England. Apart from any commercial considerations, there is an obvious strategic advantage to be gained from this arrangement in time of war, and as a controlling interest in the Anglo-Iranian Oil Company is held by the Admiralty this was no doubt taken into account.

From the consumer's point of view, 1950 saw few changes of importance in the oil situation. Further experience gained during the year served to demonstrate even more conclusively the advantages to be gained through operating diesel engines on boiler oil, and this is likely to become standard practice in time. Although the main advantage is undoubtedly the price differential between the two grades of fuel, there are others which have become apparent as experience has been gained. It is believed that cylinder liner wear is reduced, and it has certainly been shown that head valves and fuel injectors need cleaning less frequently, cutting down maintenance of the main engines to a considerable extent. The reduction in diesel knock is noticeable, and contrary to common belief, the engine room is certainly no dirtier, and in most cases is actually cleaner, than when diesel oil is burnt. This can be attributed to the fact that the heavier fuel is not so liable to penetrate through joints and couplings.

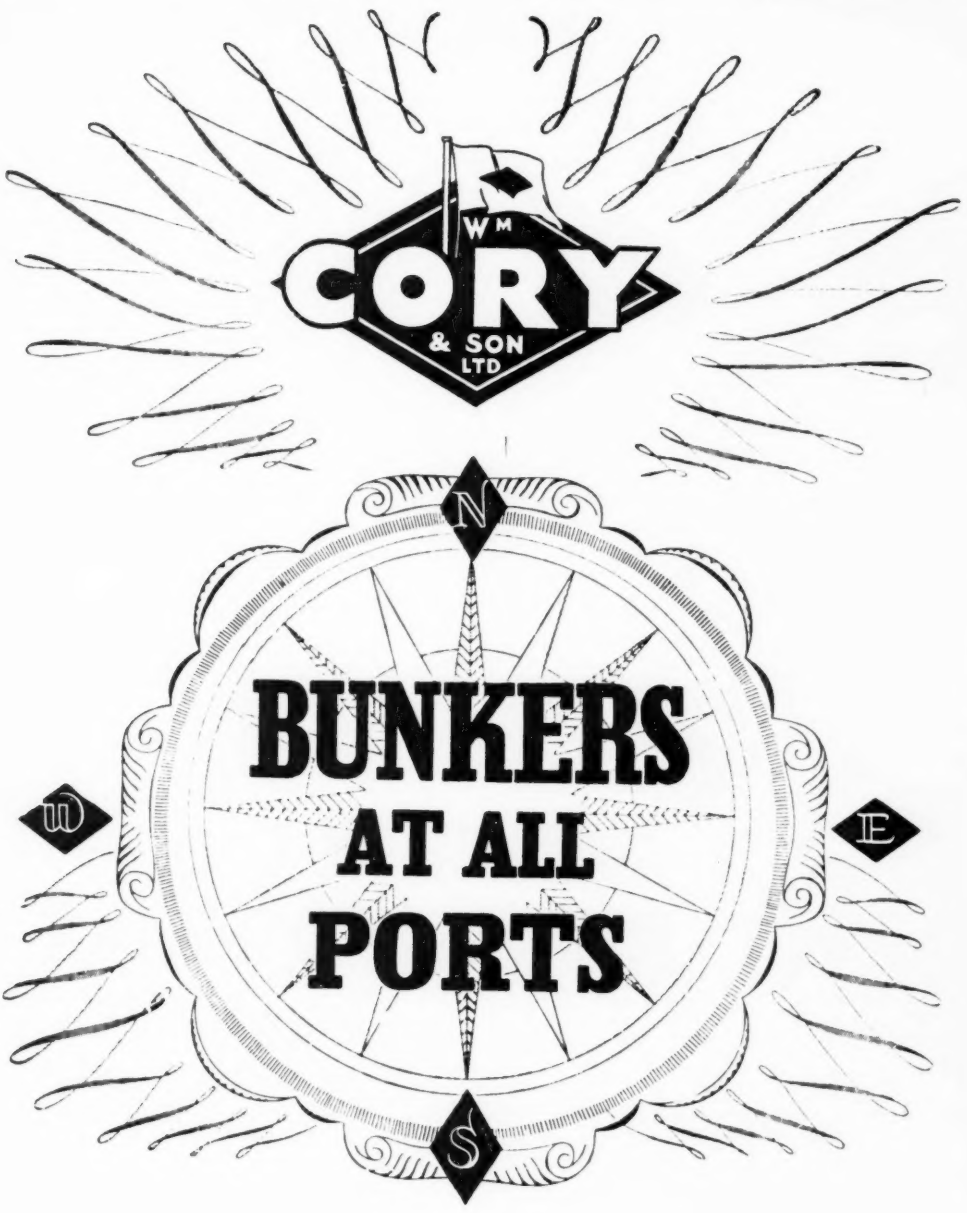
Towards the end of the year two increases in the prices of oil fuels were announced within a couple of months of each other. These would no doubt have produced more adverse comment from the shipping community if freight rates had been lower at the time. As it was, they were accepted as a further inevitable sign of the times. It is noticeable that as a result of these two increases, the difference in price between diesel and boiler fuel has been still further increased.

Rise in Tanker Freight

Despite the continual new flow of new tankers from the shipyards, the demands of the oil companies for tanker tonnage remained unsated throughout the year. Rates for tanker chartering were consistently high, and in September the usual seasonal demand for extra tonnage combined with the effect of the war in Korea to produce a sudden increase that sent rates soaring to levels untouched in the previous two years. The opinion was immediately expressed in a number of quarters that this was only a temporary phase, caused by a small shortage of tonnage at a time when demands were urgent. In the months that have followed, however, there has been no sign of a fall, and at present the market rate for single voyages for reasonably prompt tonnage is of the order of MOT plus 200 per cent. Some relief to charterers is likely to come in the course of the next month or so, as the effect of the opening of the Trans-Arabian pipeline makes itself felt. As has been stated above, this pipeline was completed in December, and the first tankers began to load at once; but it has been estimated that it will be March before its full effect on the tanker market is felt. Until rearmament was resumed it seemed likely that this effect would be quite noticeable. Now, it is a matter for speculation.

THE Stag Line has sold its cargo vessel *Photinia* to Rederi A/B Asta of Mariehamn, Finland. The vessel will be renamed *Atlas*. The ship was built in 1929 by the old Sunderland yard of Swan, Hunter & Wigham Richardson, Ltd.

THE Halycon Line, N.V., Rotterdam, has bought two ships abroad. One is the 6,700 tons gross *Bibury*, owned by Houlder Brothers & Co., Ltd., London. Its new name will be *Stad Maassluis*. The second, to be rechristened *Stad Amsterdam*, is the 2,865 tons gross *Theokeetor*, owned by Goulandris Bros., Ltd. Both ships were built in 1942.



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MARINE INSURANCE IN 1950

A REVIEW OF UNDERWRITING ACTIVITIES OF THE YEAR

By DOUGLAS KING-PAGE

TO SHIPOWNERS the most important event in the marine insurance market during the past year may well have been the revision of the "Joint Hull Understanding" in October. It will be remembered that in the autumn of 1945, when hostilities in Europe ended, the then current Joint Hull Understanding was revised in such a way that on renewal the rate was affected to the extent of the removal of that constituent part which represented the wartime surcharge, which had been imposed to meet the extra marine hazards of navigation under war conditions. Further, in the case of risks which had undergone increase in rate by reason of the "on record" formulae of the Understanding, rates were lowered by the reduction of the constituent part representing such increases by 50 per cent. Even at the time it was thought possible that underwriters had been over-generous, and a considerable increase in the number of casualties in the years immediately succeeding tended to confirm this view. Nevertheless, in subsequent amendments of the Understanding, the trend was in favour of shipowners in every respect so far as those cases where, by increasing the amount of aggregate value which constituted the dividing line between the more severe Formula A and the less severe Formula B, some fleets became subject to Formula A which had previously been subject to Formula B, and had to undergo the more severe requirements of their new basis of rating. Before October, 1950, the last revision of the Understanding had been made in March, 1949, when both formulae were modified favourably to shipowners except that the dividing line between them was heightened from £4,000,000 aggregate value to £5,000,000 aggregate value.

Effects of Devaluation

In September, 1949, before devaluation of the £ occurred Mr. A. B. Stewart, chairman of the Joint Hull Committee, speaking at the San Remo Conference of the International Marine Insurance Union, had pointed out that hull insurance would be affected adversely should devaluation occur. The event followed quickly on his warning, and in January 1950 both Mr. E. H. N. Dowlen, chairman of the Institute of London Underwriters, and Mr. G. D. Scott, chairman of the Liverpool Underwriters' Association, spoke of the adverse effect which devaluation would have on hull business in particular. They both pointed out that if ships insured in sterling, in respect of which premiums had been paid in sterling, had to be repaired in the dollar area, the resultant claims would be increased by the extent by which the £ had been devalued. Many thought these pronouncements presaged an immediate revision of the Understanding to meet the new circumstances, but it was October before that step was taken.

In the meantime, at the Eastbourne conference of the International Marine Insurance Union in September, Mr. Stewart had said that underwriters had not yet felt the full effect of devaluation; that he had hoped that the rising cost of repairs due to devaluation would be ironed out; but that now with the rearmament programme he saw no hope of this. The revision of the Understanding followed soon after Mr. Stewart had spoken and, in the light of the circumstances, it was not severe. The revised formulae retained the previously implied condition that where over the last three completed years an ownership had a credit balance of 40 per cent or over, the renewal risk might be effected without increase in premium, but the sliding scales of increase in each formula were more closely subdivided, and the new scales operated to require greater percentages of increase in renewal premium as the percentage of credit balance increased. Under Formula A the new scale ranged from an increase of 10 per cent to one of 30 per cent, compared with a range of from 10 per cent to 25 per cent previously, while in the case of category B the new scale ranged from an increase of 5 per cent to one of 15 per cent, compared with a range of from 5 to 10 per cent previously. Moreover in the new Understanding the dividing line between risks in category A and risks in category B was heightened still further, being raised from £5,000,000 to £6,000,000 aggregate value. This change, also, brought some risks which had previously enjoyed the less severe requirements of Formula B within the scope of the more severe Formula A. Viewed as a whole, the revised formulae do not appear to make unreasonable new demands on shipowners. The greater subdivision of the percentage brackets of the sliding scales makes the system of "making the punishment fit the crime" which is the basis of the Understanding, even more flexible than before; and places a premium on good management which results in freedom from claims.

The Gold Clause

Another event of importance affecting shipowners during 1950 was the making of a "gentleman's agreement" in August, concerning the Gold Clause in legislation based on the Hague Rules. This agreement, promoted by the British Maritime Law Association, was the outcome of the chaotic conditions relating to shipowners' liability to cargo arising out of the devaluation of the £, and the great diversity of exchange rates in between the £ and the dollar. When various nations ratified the Hague Rules Convention by enacting legislation based on those Rules, they had adopted as the limit of liability to cargo the equivalent in their own currency of the £100 per package or unit of cargo which is prescribed in the Rules, and which is the limit of the British Carriage of Goods by Sea Act. Most nations had also included in their legislation the Rule which provides that the values mentioned in the Act shall be taken as "gold values". International financial developments had made this last provision practically impossible, since none seemed to agree upon what was meant by "gold values"; while insofar as the limits which once represented £100 sterling were concerned, these had become in some cases absurd, as for instance in the case of Italy, where the limit in lire represented only a few pounds in sterling and a small sum in dollars.

New "Gentleman's Agreement"

The "gentleman's agreement" of August was made between shipowners and their Protecting and Indemnity Associations on the one hand, and cargo interests and their marine underwriters on the other. The main provision was to the effect that shipowners would increase the limit of £100 per package or unit of cargo to £200 sterling, and that cargo interests would not insist upon the application of the Gold Clause when claiming on shipowners. The agreement applied initially only to British interests and was widely adopted by such interests. It was made clear, however, that adherents to the agreement from other countries would be welcome and it is gratifying to know that other maritime nations have, in fact, taken to the agreement in such measure that it proposes to become international. The agreement is not, of course, enforceable in law, since no private pact can override the provisions of the Carriage of Goods by Sea Act relating to shipowners' liability to cargo. That is why it is called a "gentleman's agreement"; but it promises to operate effectively pending a revision of the Hague Rules, which is contemplated, but which will naturally take a considerable time before it can be accomplished and longer still before it can be embodied in the various national laws based on the Rules.

An outstanding achievement of the marine insurance market which occurred during 1950 was the taking over by Lloyd's underwriters and the British marine insurance companies of that part of the insurances of the *Queen Elizabeth* and *Queen Mary* which had previously been insured by the Government under the Cunard (Insurance) Agreement Act, 1930. That Act was passed to enable the Government to insure the two great liners for the excess of the amount which could be placed in the open market at a reasonable premium, up to the full amount for which insurance was required. From the laying of the keel of the *Queen Mary* up to the end of 1949 the open market had insured, annually, between £2,000,000 and £3,000,000, or a little more, of the amounts at risk, based on a value of £4,800,000 in the case of the *Queen Mary* and £5,600,000 in the case of the *Queen Elizabeth*.

When in January, 1950, the White Star Line was absorbed by the Cunard Steam-Ship Co., Ltd., it would, apparently, have required an amendment of the Cunard (Insurance) Agreement Act to enable the Government to continue as an insurer of the two *Queens*. The parties concerned, however, thought it possible that the whole of the amount at risk on the two ships could be covered in the open market, and this was in fact accomplished, despite the fact that in addition to the insured values and supplementary lines on "total loss only" conditions, considerable amounts had been insured on "balancing charges" in respect of the two vessels. In fact, at the end of 1949 the market took over £6,371,500 which the Government had previously insured out of a total of £13,250,000 for which the two vessels had been insured for the year ending March 31, 1950. When the renewal for the year beginning April 1, 1950, came to be placed, this record was exceeded, for the market covered some £16,000,000 in all on the two ships, including lines on balancing charges which are, in effect, "total loss only" insurances.

Restrictive French Insurance Law

In contrast to the achievement of the market in covering so large an amount on the two *Queens*, it was a surprise to many when, in July, it was learnt that the French liner *Liberté*, formerly the Norddeutscher Lloyd liner *Europa*, which had been reconditioned at a cost of between £7,000,000 and £8,000,000, had been insured for the equivalent of only about £3,000,000. The comparatively small amount for which this risk was effected was in no way due to the vessel representing an inferior risk but was a consequence of the French insurance law which restricts the insurance of French ships to insurance companies domiciled in France. That meant that the British market could participate in the risk only by means of reinsurance, and it is an established fact that the British market will write far larger amounts on an original risk than on the same risk offered as a reinsurance of other underwriters.

It would seem beyond doubt that the failure to obtain full cover for the *Liberté* was a cause, if not the sole cause, of a movement on the part of French shipowners to get the restrictive insurance law amended. This movement is believed to have the backing of French marine underwriters, who have found that the endeavour of their Government to protect them from competition on the part of other markets has proved a two-edged weapon. It is undoubtedly an embarrassment to a national market to enjoy a monopoly of far more business that it can with prudence accept.

One more incident of 1950 in connection with hull business was the final settlement of the claim in respect of the total loss of the Royal Mail liner *Magdalena* on her maiden voyage in April, 1949. When the vessel was lost she was so recently completed that the final accounting of her actual cost to her owners had not been made. She was insured on a value of £2,000,000 with a further £500,000 placed on "disbursements". In claiming on their underwriters, the Royal Mail Line elected to accept only £300,000 of the sum insured on "disbursements" as a payment "on account" pending the ascertainment of the vessel's actual value. The claim for £2,300,000 in all was paid within a few days of its presentation, and some surprise was expressed when, early in 1950, it was learnt that underwriters had paid the balance of £200,000 to make the total claim £2,500,000 the largest claim ever paid on an individual hull risk. The gesture of the Royal Mail Line in electing to await the final accounting of cost before asking the underwriters to pay the full sum insured was a generous one. None can cavil at their subsequent requirement that the balance outstanding should be paid.

Polish Coal Warranty

During 1950 no changes or amendments were made to the various sets of Institute Hull Clauses in common use for the insurance of British tramps, but in the middle of the year it was decided that the Polish Coal Warranty should be deleted from the Institute Hull Warranties. This warranty was adopted in January, 1948, as a result of the number of fires experienced in shipments of Polish coal bound on even comparatively short voyages. In its final form, as amended in July, 1949, it read "Warranted no Polish coal as cargo except for European or Mediterranean voyages or to the West Coast of Africa not south of Dakar". That was a considerable expansion of the limits of the warranty, which had previously been fixed at "not south of Cape Finisterre". The expansion was the result of representations by shippers of Polish coal, who pointed out that a more careful selection of the coal shipped had virtually eliminated the risk of spontaneous combustion. Experience of the trade under the revised warranty having been satisfactory, in late 1949 it was decided not to charge any additional premium for voyages in breach of it, and since this made the warranty virtually inoperative it was eventually deleted from the Institute set.

An event perhaps affecting shipowners more than underwriters was the revision in May of "Lloyd's Form of Salvage Agreement," in common use for the making of contracts between shipowners and salvors. The main amendment consisted of a provision for "cross appeals" in connection with disputes over salvage remuneration, but the form was revised in other respects to bring it into line with current conditions.

New Premises

Turning to more general matters, it may be said that during 1949 the premium income of the British market continued to increase, although in reduced measure compared with the increases of the immediately preceding years; settlements also tended to increase, although as yet there is no definite indication that marine insurance has ceased to be a profitable undertaking. In June it became known that Lloyd's were negotiating the lease of a site in the blitzed area adjacent to Lime Street, with the intention of erecting a new building in which a new Underwriting Room, one and a half times the size of the present one, will be included. Even before the war Lloyd's building had been proving inadequate for the accommodation required. The acquisition of Royal Mail House, integral with Lloyd's building, and the allocation of an apartment in the extra space to brokers, proved only a palliative. A plan for a gallery in the Underwriting Room to provide more seating accommodation was carried as far as the erection of a temporary experimental section, but the decision to acquire new premises has made this expedient unnecessary.

Viewed in retrospect, 1950 has been a year of comparatively few but important events. It has been a year in which the British marine insurance market has continued to hold its own in the international field, foreign credits which are so important an invisible export. The security of British marine policies, whether those of Lloyd's underwriters or the companies, remains paramount and is accepted unhesitatingly throughout the world. During a period in which some national industries have suffered undoubted vicissitudes, marine insurance has continued to be an outstanding example of successful private enterprise.

FREIGHT MARKETS IN 1950

THE DEVELOPMENT OF EXCESSIVE DEMAND FOR TONNAGE

By BALTRADER

THE freight market of 1950 came in like a lamb and went out like a lion. In the early months, shipowners began to resign themselves to a recession which had been expected for several years. Rates of freight declined to a level which left no margin to cover the uncertainties inherent in every ocean venture. Owners began to consider that the game was not worth the candle in view of the steady rise in all costs of operation and maintenance. This view applied more particularly to the preponderating bulk of tonnage built before or during the war, lacking in economy and requiring an undue amount of repair.

The general feeling in the early summer was shown in individual cases by the prices accepted for secondhand tonnage. For instance "Sam" tonnage of Liberty type changed hands at £110,000 in April compared with £185,000 in the early part of 1949. As a parenthesis the value by the end of 1950 was about £220,000. It is true that owners of modern economical tonnage refused to part with their vessels, but this was in view of the high cost of new building rather than immediate expectation of profitable trading. There were several reasons for the dull conditions of January to July, such as the virtual absence of coal exports from America to Europe, which had for years occupied large numbers of foreign ships, both American and European. The Argentine failed to sell a normal quantity of wheat to Europe, and the maize which could have been disposed of was not available owing to drought. Perhaps the most depressing factor, especially for British tramp shipping, was the lack of appetite experienced by the Minister of Food, which found that every warehouse, good, bad or indifferent, was choked with grain.

Trans-Atlantic Grain

Tonnage for such cargoes as were shipped was easily obtained at low rates, for there is no doubt of the ability of bulk charterers to depress freights when markets are slow. The effort to save dollars deprived the North Atlantic cargo liners of much general cargo, with the result that the liner companies were prepared to accept all the grain that could be allotted to them; the demand for tramp tonnage to load wheat in North America was proportionately reduced. At the beginning of the year there remained about 58 coal-burning *Fort* vessels leased by the Canadian Government to the British Ministry of Transport and almost all chartered on bareboat basis to British owners. These were due to be handed back to Canada in 1950, and it was commonly thought that they would be laid up owing to the high cost of running vessels under the Canadian flag. The decision to transfer these ships and 65 other Canadian vessels to run under the British flag caused some concern as to the future balance of shipping and cargoes.

Time Charter to Liner Companies

On the credit side, even in the least active period of the year, was the well maintained demand for tramp tonnage on time charter to supplement the regular lines, particularly outwards to Australia, South Africa and the East. There has also been a large trade throughout the year to provide India's increasing millions with wheat from Australia, the Gulf of Mexico, North Pacific and River Plate. In February Pakistan, having fallen out with India, made peace with South Africa and withdrew the embargo on imports from that country. Regular shipments of coal have since been made from Durban and Lourenco Marques to Karachi and Chittagong.

A development took place in May which led to considerable employment of tramp tonnage for long voyages—Manchuria and North China for the first time since the war began to ship full cargoes of soya beans, also some maize and groundnuts to the United Kingdom and Continental countries. One must hope that these and other exports, rather than armies, will increase in importance in the Far East. A somewhat disappointing volume of chartering for grain from Australia to the United Kingdom was partly offset by the operations of Egypt, which took many cargoes from Australia, spread over the year. Egypt at the same time increased the export of rice to Eastern countries, having a surplus of 100,000 tons.

River Plate Market

The River Plate trade, which at the beginning of the year showed signs of improvement, soon relapsed into apathy; Argentine wheat found a comparatively small market in Europe, but was regularly shipped to India in exchange for jute and gunnies. Maize, as already mentioned, failed to come to the rescue owing to the drought. The principal source of homeward employment from the River Plate was light cargo such as oilcake and expellers; a large part of this was carried by the liners, even sometimes in the holds which should have been refrigerated for the carriage of meat. As a consequence owners refused to charter their vessels outwards with coal unless at a rate which ensured some sort of return for the round voyage. They might be compelled to seek homeward cargo at Pepel or Takoradi, or take ore from Brazil to the United States. The rate for coal from the U.K. to Buenos Aires gradually rose from 28s. 9d. to 55s. during the quiet period of the year. Mediterranean ore and phosphate offered small attraction for much of 1950, Bona paying about 20s. 6d. or 21s. for ore to the United Kingdom until rates were lately doubled. St. Lawrence grain was moved to the United Kingdom mostly at from 7s. 9d. to 8s. 3d. per quarter, although at the end of the season 10s. was paid. Requirements for wheat from Churchill to the United Kingdom were mainly covered at 9s. per quarter. The Timber Control made a late bid to attract tonnage to load in the Baltic and White Sea, and as an example increased its rate for d.b.b. towards the end of the season from 170s. to 220s. per standard from Archangel to the U.K. Outward employment with coal gradually diminished for lack of stems. The dull tone of the market in May and June was shown by the acceptance of sugar to the U.K. from San Domingo at 55s., from Mauritius at 47s. 6d. and Queensland at 70s. per tons, with expenses in the latter case probably amounting to about £7,000 at the loading ports.

Effect of World Events

In the middle of the summer, at a time of the year when freight markets are seasonably at their quietest, world events occurred which called for the employment of shipping on a steadily mounting scale. The new requirements for the support of U.N. forces in the Far East, and for stockpiling at home, revealed the fact that much inquiry of a more routine kind had been held back for a further fall in rates. The outbreak of war in Korea did not immediately affect freights; the trans-Atlantic, River Plate and Mediterranean markets, in fact, remained on the whole quiet for several months, although Cuba to U.K. sugar advanced in August from 60s. to 68s. 9d. But it was not long before the North Pacific lumber charterers took alarm in face of the probable requirements for tonnage to supply the U.N. forces. To ensure a cover for their heavy commitments, they rapidly advanced their rates from about $73,000 (U.S.) to $105,000 f.i.o. for lumber and general cargo from North Pacific to the United States North of Cape Hatteras. This move affected the whole of the Eastern

Hemisphere, the Australian grain charterers who had been fixing in June at 47s. 6d. from Eastern States to India bulk ex silo, were paying 7s. 6d. more in August and, similarly, 70s. was paid for discharge in the U.K. South African coal freights advanced in the same period, 57s. being paid for the voyage to Buenos Aires, compared with 13s. 3d. early in July. Shipments of manganese ore from India to the United States much increased in volume and rates for this employment, which had been at a low ebb, advanced strongly. Large commitments for shipment of soya beans from Manchuria had to be covered in August at up to 105s. per ton, basis discharge in Rotterdam, compared with 70s. accepted in May.

In October, the rate for bulk wheat from Eastern States Australia to the U.K. had reached 87s. 6d. per ton and North Pacific lumber and general cargo was fixed to the United Kingdom at 92s. 6d. f.i.o., compared with 58s. early in the year. On this side of the world the Mediterranean ore charterers at last felt the effect of the general shortage of tonnage. Bona ore to the United Kingdom paid 27s. early in November, 7s. more than the lowest of the year. The purchase by Great Britain of 800,000 tons of coarse grain from South Russia in November came at a difficult time for securing tonnage. The first fixtures were at 50s., or 17s. 6d. more than the rate paid for the carriage of the previous year's purchase; but owners were soon obtaining much more.

American Coal Chartering

When heavy chartering began in November for the import of coal to the United Kingdom all restraint was removed from many of the freight markets. Beginning at 50s., the rate paid from Hampton Roads to the U.K. soon advanced to 65s. for December and January and 62s. 6d. for February. The Chartering Committee obtained tonnage by paying 75s. from the Black Sea to the U.K. La Goulette to U.K., ore, paid 43s. 6d., or more than double the rate accepted during most of the year. The rate for San Domingo to U.K., sugar, moved up soon afterwards from 62s. 6d. to 80s. per ton. Grain carriers from the U.S. Gulf of Mexico to the U.K. were chartered at 20s. per quarter, compared with 10s. current in May. The North Pacific charterers were in need of space to load lumber or grain for the U.K., India, South Africa, Australia and Japan. Tonnage was fixed at 125s. f.i.o. from British Columbia to the United Kingdom, a rate of 67s. more than was accepted in February. River Plate wheat was chartered to India at 120s., or twice the rate paid in the summer.

Throughout the year there has been active time charter employment offered for British tonnage by the British liner companies; and Continental lines have also taken many tramp vessels on time charter. Trips on time charter from Europe to Australia have been a continuous source of employment. West African and West Indies round voyages have been a regular feature and the French lines have taken many tramp ships for their trade with Madagascar, Reunion, and especially Indo-China. The British lines to India, Indonesia and the Far East have also been fairly regular time charterers. Particularly towards the end of the year, charterers other than the liner companies engaged vessels on time charter when unable to attract owners on voyage charter basis. Rates of hire for time charter naturally fluctuated with the ups and downs of alternative employment. The following rates paid for typical oil-burning steamers engaged on round voyages of several months duration, with delivery on this side, are an index of the general state of the markets:- January, February and March, 12s. to 12s. 6d.; April, 13s. 3d.; June and July, 12s. to 12s. 9d.; August, 16s. 9d.; September and October, 18s. to 18s. 6d.; November, 18s. 6d. to 20s. 6d.; December, rising to about 29s. per month. The monthly hire in these instances, therefore, rose on an average from about £6,000 to about £14,000. The value on time charter of 10,000-tons diesel vessels, in similar cases, finally reached the neighbourhood of £17,000 per month.

SHIPS AND SHARES

Shipping and Shipbuilding Equities in 1950

By THROGMORTON

BETWEEN the close of 1949 and the end of 1950 the *Financial Times* Weekly Share Price Indices for shipbuilding ordinary shares rose from 100 to nearly 160; for shipping equities the same indices advanced from 100 to 116.5. The sharply contrasting behaviour of these two sets of figures may seem strange in view of the fact that both the shipbuilding and shipping industries gain their living by the sea and have thus a similar basic economic background.

The explanation is, however, a simple one. Towards the end of 1949 figures were published showing that orders for new tonnage booked in that year were unlikely greatly to exceed 400,000 tons gross compared with a postwar 12-months peak of about 2,000,000 tons. This forecast inevitably depressed shipbuilding equities, which had already fallen sharply as evidence accumulated of the unwillingness of owners to place orders at the high prices then ruling. But conditions began to improve quite early in 1950. Devaluation gave a deferred stimulus to the order books and owners were attracted by a general resumption of fixed price contracting. Tanker orders poured in both from the oil groups and from dry-cargo undertakings which found it profitable to order new tanker tonnage and hire it out on time charter to the oil companies. Then came Korea and rearmament, and owners were forced to the conclusion that nothing was to be gained by a further deferment of contract placing and, indeed, that there was danger of their being forced to take so humble a place in the new order queue that they would be unable to take advantage of the increase of freight rates that followed, at first lethargically, on the heels of devaluation but was given its major impetus by the outbreak of war in Korea.

Even though the builders were compelled by the increase of raw material and wage costs to discard fixed price contracting, orders continued to be taken in a regular flow throughout 1950. Thus, by the close of that year, investors had come back to the shipbuilding share market in considerable number. Reports of shipbuilding concerns published during the year made an excellent showing, in some cases owing to an unusual volume of completions and in all cases to the economical working that the use of modernised plant and a more regular supply of raw materials and components made possible.

Examples of Profit Movements

To give a few examples of profit movements shown in the latest accounts of some of the leading shipbuilding and marine engineering companies, it may be stated that trading and other profits of R. W. Hawthorn, Leslie & Co., Ltd., rose in the year to June 30 last from £532,090 to £568,000 and of John I. Thornycroft & Co., Ltd., from £933,000 to £1,070,000. In the year to March 31 last, Alexander Stephen & Sons, Ltd., earned profits of £726,000 (against £508,000) while the 1949-50 revenue of Wm. Doxford & Sons, Ltd., increased from £538,000 to £603,000. Dividends were generally maintained and, where changed, were slightly raised. Doxford again distributed a scrip bonus of 5 per cent. Financial years closed with reserves further strengthened and liquid resources, swollen by a chance payment from owners, amply proportioned. The 1950 popularity of shipbuilding equities is thus understandable. Less favoured were the equities of the ship-repairing companies, whose activity declined with the completion of reconversion and deferred survey and repair work.

Few shipping companies have yet reported on their profit experience for financial years ending after June 30 last. Their accounts have therefore not yet shown the benefits that will have accrued to liner, tanker and tramp companies from the higher freights

(*Continued on page 69*)

BRITISH SHIPPING FINANCE

RISING COSTS AND RISING RATES

By the Financial Correspondent of THE SHIPPING WORLD

THE OUTBREAK of the Korean war gave a sharp chronological division to the affairs of the shipping industry in 1950. Until that unhappy event took place, freight rates were sagging and hesitant: the devaluations of September 1949 had little effect on the freight rate structure, but caused sharp increases in oil fuel and hard-currency port costs. Korea set in motion inflationary impulses throughout the world whose effect on sea transport charges, so far as the tramps are concerned, may be seen in the Chamber of Shipping indices reproduced below:—

1948 100

	1949	1950
January	87.1	72.8
February	100.5	75.5
March	95.0	75.8
April	94.6	74.4
May	99.7	71.4
June	86.7	74.3
July	73.3	78.8
August	70.6	86.6
September	71.6	98.0
October	69.8	95.8
November	66.5	97.6
December	72.8	
Year	82.3	

Conference rates have also been suitably adjusted, tanker rates have risen sharply, and higher prices for their products give some compensation to the owners of whaling and fishing vessels for their enhanced working costs. But none of the shipping companies so far reporting in 1950 has shown the benefit that has lately come from higher rates. Few annual shipping reports yet published have carried the profit and loss picture beyond June, 1950, so that, especially in the case of the tramps, sharp falls in earnings have been shown.

A few instances may be cited: profits of the United British Steamship Co., Ltd., whose financial year closes on June 30, fell by £196,000 to £301,000, and the Ellerman group profit declined from £3,431,000 to £2,731,000. Manchester Liners, Ltd., which accounts to June 30 and which trades with the U.S.A. and Canada, earned profits which were somewhat lower at £515,000, against £602,000, while group earnings, of Coast Lines, Ltd., whose accounting date is December 31, fell from 22.8 to 13.3 per cent. Reardon Smith Line, Ltd., suffered a decline in profits from £976,000 to £766,000, but Furness, Withy & Co., Ltd., was able to show profits (for the year to April 30) of £995,000, against £840,000. Royal Mail Lines, Ltd., and Clan Line Steamers, Ltd., slightly increased their earnings in 1949, as did Union-Castle and the P. & O., but Cunard group profits fell from £9,767,000 to £8,985,000.

Difficulty of Comparison

In general it may be said that the liner companies whose annual reports were published in 1950 fared better than did the tramps. The tanker companies had the advantage of the growing volume of world trade in petroleum products: activities of the Eagle Oil & Shipping Co., Ltd., a subsidiary of Canadian Eagle, brought in 1949 revenues of £5,943,000, compared with £3,895,000, the former figure including a special credit of £800,000. The trawler companies, on the other hand, generally experienced unfavourable conditions due, in part, to vacillating Government control policies.

In making comparison between the annual results of shipping companies it must, of course, always be borne in mind that the accounting concession given the industry by the Exemption Order makes such comparisons tentative rather than exact. There are other factors which call for attention when comparisons are made. A considerable new tonnage has come into commission over the past two years, with a consequent increase of voyage receipts. These are taking the place of meagre interest and dividend reserves from security portfolios and bank deposits awaiting investment in new construction. But this new tonnage attracts heavy depreciation and interest on capital charges. The initial allowances give no more than temporary fiscal ease and the majority of shipping boards have wisely transferred them to tax equalisation accounts for use when the normal wear-and-tear allowances run out. Completion of reconversion, deferred survey and repair work has also brought a larger tonnage into employment.

The balance sheets of the leading shipping companies show that finances generally have been maintained in excellent order. Reserves have been increased and liquid resources—the claims on them are heavy—remain substantial. Again a few examples taken from published balance sheets may be used to illustrate the position in facts and figures. At April 30 last, the group reserves of Furness, Withy totalled £13,648,000, compared with an issued capital of £7,500,000, while the group held £12,275,000 in cash, bills and tax certificates and £5,330,000 in quoted investments. The net working capital was £5,870,000 but capital commitments amounted to £4,260,000. At December 31, 1949, the Ellerman group had reserves and provisions of £22,551,000 and held £8,049,000 in readily realisable investments, together with £1,990,000 in cash. But again, lest too rosy a view be taken of the financial position, it must be pointed out that new tonnage commitments were £11,518,000.

The chairmen of shipping companies have again had to warn shareholders not to overstress this strength of finances as disclosed in balance sheets. The reserves are much depreciated in value by the continuing fall in the purchasing power of the £ sterling and, though the replacement of wartime losses of tonnage is largely completed, the renewal of obsolete vessels daily becomes a more urgent problem.

Burden of Taxation

Sir Ernest Murrant has been indefatigable in his endeavours to instruct the investing public and, indeed, the nation as a whole, in the nature of the financial problems that confront shipowners. At the November annual general meeting of Manchester Liners, Ltd., he pointed out that, of the existing U.K. merchant fleet of 18,000,000 tons gross, nearly 5,000,000 tons represented vessels which had already exceeded the normal economic span of life. Replacement, he showed, would swallow up the 1950 cash balances of the group and would eventually, with tax and other disbursements, oblige the group to have resort to its investments.

Shipping chairmen have been equally tireless in their endeavours to persuade the Government of the harmful incidence of present excessive tax rates and of a tax system which has not been modified to accommodate inflation. Additional funds set aside by shipping companies to meet the high cost of new construction are not allowed for tax assessment purposes. This serious failing of the fiscal system of the United Kingdom has, of course, harmful effect throughout industry and is a matter into which the Tucker Committee on tax incidence is inquiring. Perhaps the Royal Commission recently appointed to look into the "whole of present system of taxation of profits and income, with particular reference to the taxation of business profits and the taxation of salaries and wages" will place the enforced relation of depreciation allowances to "historic" or prime cost, rather than cost of replacement, high in its lists of tax evils to be probed. It should also give most careful consideration to the harm wrought the shipping industry by the so-called "balancing charges," but, unhappily, the proceedings of Royal Commissions are leisurely and action on their findings takes an unconscionable time.

BRITISH SHIPBUILDING FINANCE

A DRAMATIC CHANGE IN THE INDUSTRY'S POSITION

By the Financial Correspondent of THE SHIPPING WORLD

THOUGH official figures are not yet available for shipbuilding output in the United Kingdom during 1950, authoritative estimates recently made confirm that it was a period of profitable activity. New orders booked will, it is calculated, total about 1,500,000 tons gross while launchings and completions should each exceed 1,300,000 tons. In the calendar year 1949, it may be recalled, new orders booked fell to 438,000 tons. This was the lowest figure of any twelve months since the war; the best achievement of recent date was a 2,000,000 tons intake at the height of the war casualty replacement programme.

The exceptionally poor 1949 order book reflected a reluctance of shipowners to expend capital on new tonnage at a time when there were hopes of falling costs and prices. It was a waiting period, with the majority of owners holding aloof from the market; but costs did not fall and the inflationary spiral has thrust once more into national and world economies. First came the devaluations of September, 1949. These, for a while, had little effect on the freight rate structure. It needed the outbreak of war in Korea to release the flood of rising costs that has since swept through the world and which shows no sign of recession.

Even before the Korean hostilities, however, there had been a revival in the ordering of new tonnage. An improved supply of steel, timber and components, and what appeared to be a levelling off of costs, enabled the shipbuilders once more to restore the fixed price contract system, either in full or with variation clauses and a ceiling price. This reversion to the prewar system was further facilitated by the completion of the liner reconversion programme and a decline in ship-repairing work—two factors which helped to ease the strain on labour, constructional and raw material resources. The more farsighted of owners took advantage of the improved situation and of shortened delivery periods and ensured for themselves a good place in the new order queue. Korea brought in those who still hesitated.

The Order Book

The order book now totals well over two years' output at the current pace of production. In it are some 600 vessels, of which 300 have yet to be laid down. Many orders recently placed will not, of course, be laid down until the end of 1951 or early 1952. There is now a more economic rhythm of shipyard operations, though whether that can be maintained will largely depend on the supply of raw materials, components and labour. The most serious threat of 1951 is a shortage of these essentials to an efficient shipbuilding industry. One bottleneck can throw the whole process of the building of a ship out of gear. Yet there is encouragement for the supply outlook in the strategic and economic indispensability of the British shipbuilding industry. The industry is one that contributes in full measure to the defence needs of the democracies and to the direct and indirect exports of the United Kingdom. British naval and mercantile marine capacities must be increased if our defence measures are to be effective. It has been officially stated that United Kingdom exports must be raised by another £300,000,000 a year if the external accounts are to be kept in healthy balance. In the securing of these defence and export objectives, few industries can give more valuable aid than shipbuilding, shiprepairing and marine engineering. For this reason no Government can afford to allow the yards and ancillary establishments to be starved of their needs.

Though complete shipyard statistical returns are not available for the whole of 1950, estimated figures are to hand for the twelve months to the end of December last. It is, for instance, known that the value of vessels on order and under construction at that date was in the region of £300,000,000, of which one-third was on foreign account. Tanker work still predominates—many owners normally interested in dry-cargo tonnage only have ordered tankers, which they are time chartering to the big oil groups—but there has been a welcome improvement in the ordering of cargo liners and tramps; and rearmament will bring work to the specialists and the builders of small craft. The situation has dramatically changed, though largely for reasons which cannot but cause disquiet.

Analysis of New Contracts

New orders actually placed in the twelve months up to September 30 last totalled 1,150,000 tons gross, with 28.2 per cent earmarked for foreign owners. The figures for the corresponding months in 1949 and 1948 were 584,000 and 2,062,000 tons respectively. Output of the twelve months to end-September last was the following: 1,379,000 tons completed, 1,290,000 tons launched and 1,244,000 tons keels laid. The export proportion of the third of these categories was 38 per cent. At the close of September the order book aggregated 3,312,000 tons, with 64.9 per cent on account of British and 35.1 per cent on account of foreign owners. This substantial total consisted of 587,000 tons (18 per cent) fitting out; 1,246,000 tons (38 per cent) on the berths and 1,479,000 tons (44 per cent) not laid down. The major single item in the order book was the tanker total of 1,974,000 tons, or 60 per cent. Next, though at a considerable and respectful distance, came cargo liners with 591,000 tons, or 18 per cent. The accent is still on tanker building. Cargo tramp orders amounted to 284,000 tons, or 8.6 per cent of the order book. It is here that the backbone of future orders lies. The need to modernise must bring the tramp companies increasingly into the market.

Shipbuilding companies reporting in 1950 have shown most satisfactory results. Many, with large completion profits coming into the reckoning, have recorded exceptionally high earnings. Some few have increased their distributions; all continue carefully to husband their funds. Some have distributed scrip bonuses with the object of bringing nominal into better alignment with real or employed capital. All are able to show an amplitude of reserves and liquid resources, despite a draining away of funds by excessive taxation and the inflation of expenditures on trading and capital account. In meeting these outlays the builders have been greatly helped by the willingness and ability of owners to make substantial advances against contracts placed. The industry has, of course, been compelled by events outside its control to discard fixed price contracting but, subject, of course, to the maintenance of world peace, the order book promises contained profitable working for some time ahead.

OFFICIAL NOTICES

New Companies

FOREMOST DREDGING CO., LTD., Dashwood House, Old Broad Street, London, E.C.2.—Registered December 20. Nominal capital: £5,000 in £1 shares. To carry on business of dredging contractors, etc. Directors: Not named. Subscribers: N. D. Wood, 26 Manor Drive, Wembley, Middx. (solicitor); A. W. Pears, 6 Colchester Avenue, London, E.12 (clerk).

PHOENIX SHIPPING CO., LTD., 6 Bevis Marks, London, E.C.3.—Registered December 21. Nominal capital: £1,000 in £1 shares. Directors: Not named. Subscribers: L. Minacoulis, 1F Rylton House, Hersham Road, Walton-on-Thames; W. Crawley, 112 Fenchurch Street, London, E.C.3 (solicitor).

[Information from *Jordan's Daily Register of New Companies*]

BRITISH TRANSPORT AIRCRAFT

A YEAR OF CONSOLIDATION

By E. N. B. BENTLEY

WHEREAS 1949 was a year of outstanding developments, including the first flights of the jet-driven Comet and the 130-tons Brabazon I, 1950 has been mainly a year of consolidation. The Universal Freighter, under construction in 1949, made its first flight in 1950, as did two much smaller aircraft, the Heron and the Pioneer II. Three aircraft which were previously under development, the Prince, the Viscount and the Hermes IV, went into service for the first time. And a newcomer on the horizon, the Britannia, is now being built. Thus, of the score or so of British postwar transport designs, about half are now in service and all but three are flying.

The development period, between first flight and obtaining a full "normal" category certificate of airworthiness for public transport of passengers, is the culminating and most critical stage in the production of a new transport. It is an indication of the severity and complexity of these trials that it seldom takes less than a whole year, and may take more than three years, before the aeroplane is at last proved to be a fit and proper vehicle for the public transport of passengers.

Before proceeding to a description of our transport aircraft I had better point out that the aeronautical community, contrary to marine practice, use the word freight for the cargo carried, and not for the price charged for its carriage. Right or wrong, it is probably too well established, by now, to be altered.

New Transports of 1950

The first of the new British transports to fly in 1950 was the little four-engined de Havilland Heron, on May 10. This 12,000-lb. aeroplane, with four 250 h.p. de Havilland Gipsy Queen 30 engines, carries a crew of two and 14 passengers at a cruising speed of 140 knots. A considerable contribution to ease of maintenance is the simple non-retractable undercarriage. Being much like the Dove in layout, the same good handling characteristics should be evident. The total take-off run, to clear an obstacle 50 ft. high, is 700 yards, which is rather better than the Dove. The performance of the Heron with one engine stopped meets the stringent requirements of the International Civil Aviation Organisation. The price of the Heron, used for estimating operating costs, is £35,000.

The Blackburn & General Aircraft Universal Freighter made its first flight on June 20, and, although a military aircraft, it has obvious civil uses. This huge 105,000-lb. aeroplane has a cargo capacity of 5,760 cu. ft. and can carry 15 tons of cargo. The four Bristol Hercules engines of 1,950 h.p. each give it a cruising speed of 140 to 155 knots. With moderate wing loading, power loading and wheel loading, the Universal Freighter can operate from comparatively small grass aerodromes, the estimated take-off run to clear a 50-ft. obstacle being under 1,000 yards. The main hold, 10 ft. square and 36 ft. long, has a built-in ramp up which lorries and other military equipment can be driven or hoisted.

The third new civil aeroplane to fly in the past year is not really a transport aeroplane. However, its characteristics are such as to suggest great possibilities for transport aircraft and for that reason it is worthy of a place in this annual summary. It is the Prestwick Pioneer II, built by Scottish Aviation, Ltd. This high-wing monoplane, with a 520 h.p. Alvis Leonides engine, carries a pilot and four passengers at a cruising speed of 130 knots. Neither the payload nor the speed are remarkable, but the stalling speed of 36 knots and landing run of less than 70 yards are altogether unusual. The ground run of 80 yards and total take-off run, to clear 50 ft., of 260 yards invite a completely new outlook on the possibilities of town to town travel.

Aircraft Now in Service

The first new British transport to go into service in 1950 was the Percival Prince. This 11,000-lb. aeroplane with two 550 h.p. Alvis Leonides engines is one of the few twin-engined transports which can maintain a rate of climb with one engine stopped. Cruising at 131 knots, with fuel for a still-air range of 480 nautical miles (550 statute miles), the payload is 1,770 lb. A survey version equipped with cameras, oxygen equipment and an automatic pilot, completed a successful high-altitude photographic survey mission in Persia during the first few months of 1950. Six, eight, ten and twelve seater versions have been put into service in England, Borneo, Brazil and Venezuela; and one of these aircraft is in use by the Royal Navy as the aerial equivalent of the Admiral's barge.

The first turbine-driven transport in the world to be put into service was the pressurised Vickers Viscount, powered with four 1,400 h.p. Rolls-Royce Dart propeller turbine engines. The Viscount first flew in July, 1948, obtained a "normal" category certificate of airworthiness a year later and in the summer of 1950 was put into service by British European Airways for a trial period on the London-Edinburgh and later on the London-Paris service. This rapid rate of progress of an aircraft with an entirely new type of power plant reflects great credit on the manufacturers concerned. The Viscount is now in production for B.E.A.C. and there are two versions, a 40-seater and a

Above: The De Havilland Heron, showing large windows and fixed nosewheel undercarriage

53-seater. This 50,000-lb. aeroplane has an optimum cruising speed of about 250 knots, flying at 25,000 ft. altitude.

The Handley Page Hermes IV was introduced by B.O.A.C. on the West African service in August 1950, and on the "Springbok" service to Johannesburg in November. The Hermes IV, with its four well-tried 2,100 h.p. Bristol Hercules engines, cruising at 240 knots at 25,000 ft., is scheduled to do the London-Johannesburg service in 1½ days. At an all-up weight of 84,000 lb. it carries a payload of 40 passengers, in a pressurised cabin, and some tons of mail and freight. As a result of recent officially observed trials, the permissible all-up weight has been increased to 86,000 lb., giving a useful addition to the payload or range. The effectiveness of the new airworthiness requirements and the soundness of design and construction of the Hermes IV are proven by the absence of serious "teething" troubles when first put into service.

All other British transport aircraft in service have been going about their business for some years. One of the four-engined types is the Short Solent flying boat, the withdrawal of which by B.O.A.C. will be regretted by many passengers and crews. However, Solents are giving satisfactory service on the Auckland-Sydney route operated by Tasman Empire Airlines. The four Bristol Hercules engines, of 1,940 h.p. each, give this 79,000-lb. boat a cruising speed of 175 knots and a still-air range of 2,000 nautical miles (2,300 statute miles) when carrying 39 passengers plus luggage and freight. Keeping up the maritime tradition in this hemisphere is the somewhat smaller 55,000-lb. Solent flying boat, operated by Aquila Airways, Ltd. The Bristol Pegasus engines give a cruising speed of 140 knots and the passenger accommodation, depending on requirements, may be for 25 or for 50 people.

The Vickers Viking

The Vickers Viking was the first British postwar design to be flown, in June, 1945, and is in use in large numbers with B.E.A.C. as well as with many foreign operators. Two specially equipped Vikings form part of the King's Flight. Powered with two Bristol Hercules engines of 1,690 h.p. each, the Viking has a range of cruising speeds varying from 130 to 210 knots. The total take-off run to clear a 50-ft. obstacle is 850 yards. Carrying 24 passengers, plus luggage and freight, the still-air range is 1,000 nautical (1,150 statute) miles, when cruising at 180 knots. Fuel consumption when cruising at 183 knots is 91 gallons an hour, equivalent to 2.0 nautical (2.3 statute) miles per gallon.

Since the first Dove, with two 345 h.p. D.H. Gipsy Queen 70 engines, was put into service in 1946, something like 300 have been sold and are operating in many parts of the world. Designed for low first cost and ease of maintenance, this smallest British transport sells for about £17,500. Carrying a crew of two, eight passengers and 450 lb. of luggage, the still-air range is 430 nautical (495 statute) miles when cruising at 148 knots. The total take-off run to clear a 50-ft. obstacle is 790 yards. A modified engine giving 380 h.p. has now passed its type test and the increased power available will give an improved performance and allow an increase of 800 lb. in the all-up weight. Existing engines can be modified to the improved standard, if required.

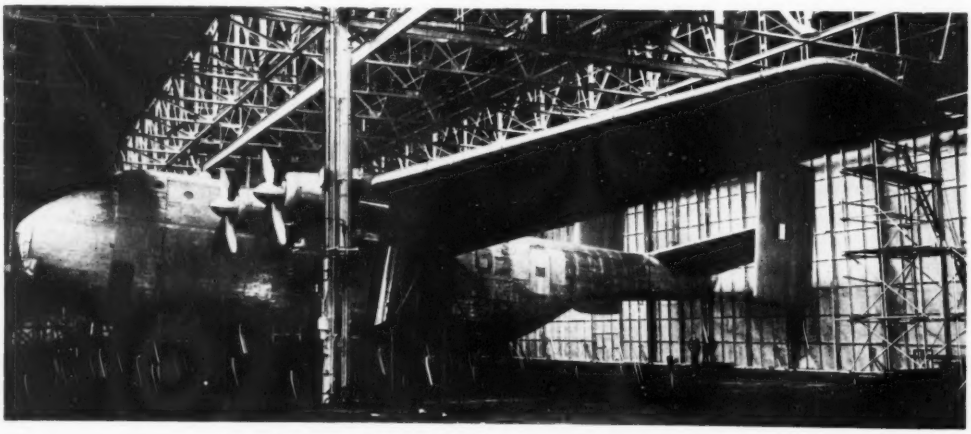
Since its introduction in 1946, when the Bristol Freighter had the distinction of being far cheaper for its size than any other British transport, it has been considerably improved. The latest, Mark 31, version has two Bristol Hercules engines now developing 2,020 h.p. each and the all-up weight is increased from 40,000 lb. to 42,000 lb. The total take-off run to clear 50 ft. is the same as before, 770 yards. Carrying a payload of 12,500 lb. and cruising at 145 knots, the still-air range is 345 nautical (400 statute) miles; but this range can be more than doubled if the payload is reduced to about 10,000 lb. The nose doors give an unobstructed opening, 8 ft. wide and nearly 7 ft. high, to the 2,020 cu. ft. hold. As a passenger carrier it can be equipped with 32 seats or, by the installation of a bulkhead, it can be used for combined freight and passenger work.

Aircraft Still Under Development

The four-engined Handley Page (Reading) Marathon, now in production for B.E.A.C., although not yet in regular service, has flown under operating conditions on several air routes in the course of long demonstration tours to South Africa and New Zealand. At 18,000 lb. all-up weight the Marathon is the smallest British four-engined air liner, having four 345 h.p. D.H. Gipsy Queen 70 engines, and carrying 14 to 22 passengers. This aeroplane meets I.C.A.O. performance requirements and the total take-off run to clear a 50-ft. obstacle is 840 yards; this is increased to 1,240 yards if one engines fails at take-off. The maximum payload is 5,350 lb. and for a still-air range of 700 nautical (800 statute) miles the payload is over 4,000 lb. The cruising speed may vary from 137 to 170 knots.

The only British civil amphibian, the little Short Sealand flying boat, is now making an extensive tour of the South and North American continent and previously had toured Scandinavia; another was delivered to British West Indian Airways for trial purposes. Weighing 9,100 lb., the Sealand has two 345 h.p. D.H. Gipsy Queen 70 engines. Designed for operation with a crew of one, including the operation of radio and the picking up of moorings, this aircraft carries five passengers for a still-air range of 600 nautical (690 statute) miles; and for short journeys seven passengers can be carried. The range of cruising speeds is from 110 to 150 knots. As a flying boat, without the amphibian undercarriage, the payload is increased by the equivalent of two or more passengers.

The Airspeed Ambassador, weighing 52,000 lb. and equipped with two 2,700 h.p. Bristol Centaurus engines, is the biggest British twin-engined transport and is now in production for B.E.A.C. Carrying 40 passengers plus mails and freight, in a pressurised cabin, a typical range is 620 nautical (720 statute) miles, when cruising at 245 knots at 20,000 ft. Cruising at 210 knots, with a payload of 9,000 lb., the range is extended to 1,510 nautical (1,750 statute) miles.



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The eight-engined B ist l Brabazon I

The total take-off run to clear a 50 ft. obstacle is 1,090 yards and the rate of climb with one engine stopped is 420 ft. per minute. The Ambassador first flew in July, 1947, and should soon reach the stage of approval for a full "normal" category certificate of airworthiness.

The Armstrong Whitworth Apollo is a 26-seater pressurised transport, powered with four 1,010 h.p. Armstrong Siddeley Mamba propeller turbine units, and its weight is 44,800 lb. The 26-passenger layout leaves 330 cu. ft. for luggage or freight; an alternative arrangement allows for a maximum of 40 passengers. The take-off run to clear 50 ft. is 1,100 yards and this aeroplane is well liked for its flying characteristics. Cruising at 20,000 ft. at 340 knots, the still-air range is 1,100 nautical (1,265 statute) miles, when carrying a payload of 7,500 lb. It is designed to meet I.C.A.O. requirements and has a rate of climb of 850 ft. a minute, with one engine stopped. The Mamba engines, being of the axial flow type, have a small diameter, 29 in., and a low specific fuel consumption.

Propeller-Turbine Air Liner

The 90,000-lb. Handley Page Hermes V is the biggest and fastest propeller turbine air liner in the world and is equipped with four Bristol Theseus units of 2,820 h.p. each, giving a total take-off power of 11,280 h.p. These engines are distinctive for having the propeller and the compressor each driven independently by its own turbine wheel. The cruising speed of 300 knots, at 24,500 ft., gives a still-air range of 1,720 nautical (2,000 statute) miles, when carrying a payload of 14,500 lb. The Hermes V is, except for the power plants, similar to the Hermes IV.

The two prototype de Havilland Comets now flying have accumulated a total of something like 400 flying hours, including tropical trials in Africa. This 105,000-lb. high flying, pressurised air liner has four de Havilland Ghost turbo-jet units giving 5,000 lb. static thrust each. Carrying a payload of 12,000 lb. and cruising at 425 knots, at 40,000 ft., the still-air range is 3,080 nautical (3,540 statute) miles. Accommodation is to be provided for 36 passengers and a flight crew of four. Cabin pressurising and wing de-icing are provided by tapping off compressed air or hot air from appropriate places on the engines. The Comet is undoubtedly one of the biggest triumphs of the British aircraft industry. But there is much to be done before the problems of powered flying controls, gusts at 40,000 ft. and the safety of passengers in a cabin pressurised at half a ton per square foot, are sufficiently overcome to permit the public carriage of passengers.

The 290,000-lb. Bristol Brabazon I is about twice as big and nearly three times as heavy as the biggest British transport aeroplanes. The size is determined mainly by the huge fuel load needed to allow crossing the North Atlantic against an 80-knots headwind, while still carrying a reasonable payload. In spite of the feeling of awe engendered by its vast size, the Brabazon is not apparently a difficult aeroplane to fly. But its enormous inertia makes it slower in response than the normal aeroplane, and this has to be allowed for, especially in the final round out when landing, in much the same way as one anticipates the response of a ship. The power units of the Brabazon I are eight Bristol Centaurus engines of 2,360 h.p. each, giving a total of 18,800 h.p. for take-off. Cruising at the relatively moderate altitude of 25,000 ft., at 220 knots, the still-air range is 4,800 nautical (5,500 statute) miles.

Aircraft Under Construction

The Saunders-Roe Princess flying boat, of which three are being built at Cowes, is estimated to weigh 315,000 lb. and is the marine equivalent of the Brabazon I. The power for this huge boat is to be provided by ten Bristol Proteus propeller turbine units of 3,500 h.p. each, there being two double units and one single unit on each side. The cruising speed, at 37,000 ft., is 330 knots and the still-air range 4,800 nautical (5,500 statute) miles, when carrying a payload of about 22,500 lb. The accommodation is on two decks and allows for 80 to 100 passengers. It is expected that the first boat will be moved out of the hangar, for mounting the outer wings, by the middle of 1951 and that the launching will take place by the end of the year.

The Bristol Brabazon II, now under construction, is similar to the Brabazon I, but will have eight Bristol Proteus propeller turbine units instead of the Centaurus reciprocating engines. The trials of the Brabazon I will result in much of the inevitable development work on the new type being already done by the time the Brabazon II flies. The change from Centaurus to Proteus power units gives an increase in speed and in operating height; the estimated cruising speed, at 35,000 ft., being 285 knots.

Also being built by the Bristol Aeroplane Co., Ltd., and in production for B.O.A.C., is the four-engined, turbo-prop, pressurised Bristol 175, now named the Britannia. The power units of this 130,000-lb. aeroplane are Bristol Proteus propeller turbines, each developing 3,200 h.p., plus 800-lb. jet thrust for take-off. Cruising at 285 knots, at 25,500 ft., the still-air range when carrying the maximum payload of 23,500 lb. is 2,350 nautical (2,700 statute) miles. Passenger accommodation can be anything between 50 and 92, according to the degree of spaciousness and luxury required. An interesting feature of this aeroplane is the four-wheel bogie on each main undercarriage, which distributes the load and allows of operation from any normal runway, in spite of the great weight of the aircraft. The structure of the Britannia should benefit much from the technical research investigations made on behalf of the Brabazon.

A new system of booking introduced by B.O.A.C. makes it possible for passengers in New York, Miami, and Mexico City to make immediate reservations at local ticket offices for all stations on routes between London, the Caribbean and the west coast of South America. Points linked in this new system are Lisbon, Bermuda, Nassau, Jamaica, Havana, Panama, Lima and Santiago. Under the new system reservations are controlled at various points on the routes so that the details of seats available can be given quickly to the stations concerned.

Monthly Air Transport Section

AIR BROKING AND CHARTERING

THE WORK AND DEVELOPMENT OF THE AIRBROKERS ASSOCIATION

By J. B. KEEFE
Chairman of the Airbrokers Association

THE FORMATION of the Airbrokers Association reflects the growing interest of the mercantile community in the use of air transport. The extraordinary development in the carrying capacity of aircraft stimulated by the demands of war inspired visions of fleets of "tramps of the air" carrying cargoes rapidly to all parts of the globe. It was natural therefore that enterprising members of the Baltic Exchange, having the means and experience in coordinating the unscheduled movement of tramp shipping, should build up a market for chartering aircraft space.

It is interesting to recall that even in 1925 inquiries for the charter of aircraft were received by a Baltic member firm whose pioneer work led to the foundation of the British national airlines of today. Indeed, in February, 1928, the first air charterparty of which record is known was negotiated by that same firm. The *Times* for June 11, 1938, records a meeting held at the Baltic Exchange on the previous day, attended by representatives of 14 British and Continental aircraft operators. Members of the Exchange, and the aircraft operators, were unanimous in desiring to establish an air section in order to facilitate the commercial arrangements for the transport of goods by air, and the elimination of wasteful effort. The chairman of the Exchange, moreover, suggested that operators of aircraft should consider the question of forming an association to undertake such work as the Chamber of Shipping did for that industry. This work is performed by the British Air Charter Association, Ltd., which was formed in 1946.

The Need for a Chartering Centre

Progress of the air section of the Baltic Exchange was delayed by the outbreak of war in 1939, but in August, 1947, a crowded meeting in the Merchants' Hall, convened by the board of directors, was attended by members of the Exchange and by representatives of the air transport industry, interested in chartering aircraft. It was clear that a centre was needed where aircraft and loads, both cargo and passenger, could be brought together, and where, moreover, negotiations for chartering could be quickly carried out. The opinion was also expressed that the development of air chartering would lead to the publication of charterparties which would in time become universally accepted. The next step taken to put into practical effect the acceptance of a resolution to form an air section was the appointment of the Air Freight Advisory Committee on March 11, 1948. At the request of the British Air Charter Association a joint sub-committee was also formed; and between March 1948 and January 1949 a great deal of progress was made, thanks to the hard work of those interested in furthering the project.

Work on the charterparties was begun in collaboration with the British Air Charter Association, and "Baltairvoy" (single voyage air cargo charterparty) and "Baltaircon" (consecutive voyages air cargo charterparty) were published. Subsequently, a draft was prepared of "Baltairnote," an air consignment note, which has recently been published.

In October 1948, interest had grown to the extent that the formation of a Baltic Exchange Air Brokers' Association was discussed. It was finally agreed to proceed with this project and an appeal for members was issued by the chairman of the Air Freight Advisory Committee in January 1949. Sufficient support was quickly forthcoming to justify the formation on February 1, 1949, of the Airbrokers Association, with a membership of some 70 firms. The problem of office accommodation for a full-time secretary, and for committee meetings, was resolved by the generous offer of the Institute of Chartered Shipbrokers of accommodation and secretarial facilities in their own suite of offices. During the year 1949-50 the objects and rules of the Association were drawn up and a great deal of committee work took place on the part of the documentary, publicity and finance committees. Among the objects of the Association, the following are the most important:

(a) To promote and establish uniformity in commercial transactions and usages in the airbroking trade, with special regard to Contracts of Carriage by Air and Charterparties.

(b) To establish in London a world air market for the charter of aircraft for the carriage of cargo, passengers and baggage and for similar or allied purposes.

(c) To institute, promote, support or oppose legislative or other measures affecting the interests of members of the Association and to communicate with Government departments, Chambers of Commerce and mercantile, public and similar bodies, and to cooperate with them in pursuance of any of the purposes aforesaid.

(d) To provide commercial arbitration machinery for the assistance of members, if called upon to do so.

The furtherance of the first of these objects has been carried out by the Documentary Committee, which is revising "Baltairvoy" in the light of experience gained since its publication; has just published "Baltairnote" and will shortly begin work on a passenger charterparty. In all this work, in which the British Air Charter Association has collaborated, the opinion and advice of the leading authority on air law in this country has been taken. Secondly, publicity has been obtained in the national and international press, in trade journals, through the Federation of British Industries, the Association of British Chambers of Commerce, the National Association of Manufacturers, the Institute of Export, and with the help of the Central Office of Information. Many stories of interesting fixtures have been given to the press both by the Association with the permission of the brokers concerned, and by the brokers themselves.

On November 1, 1950, a Daily Market State was instituted, in which offers of traffic and offers of aircraft space are reported. From time to time, in conjunction with B.A.C.A., representations have been made to Government departments in order to protect the interests of brokers and operators when these have been threatened. The Association is a member of the National Civil Aviation Consultative Council, which functions under the chairmanship of the Minister of Civil Aviation. In a recent arbitration case the decision of a panel especially elected from Council members was accepted by both parties. The management and control of the affairs and policy of the Association is vested in a Council of nine, elected by ballot, which must meet at least once in every month, and has in fact met on no fewer than 52 occasions since the foundation of the Association.

Difficulties Ahead

Membership of the Association is not now confined only to members of the Baltic Exchange but is available to British companies, firms, corporations or individuals who are engaged in the business of air broking and/or air chartering. Today 56 operators of aircraft for charter, both British and foreign, including several national airlines, are represented by their appointed brokers at the Exchange.

In the period of some three years during which the market has operated, much has been done, but the task is an arduous one and is beset by difficulties not experienced in the development of shipping. The latter has grown up during the last two centuries under the stimulus of private enterprise. Air transport from birth

has been virtually controlled by Governmental policy in most countries. Much more dramatically and quickly than the ship has the aeroplane become a major weapon of war. It is not surprising therefore that Governments have used every possible means to develop their national aviation.

The rapid advances in the technical field of flying are so costly that probably only national purses can afford the expense. Hence the formation of the great national airlines and the subsidising, in one form or another, of their cost, with the natural consequence of restrictive legislation to protect their commercial development. The private operator of aircraft for charter has therefore a great need of an organisation centralising the demand for aircraft space, in order to achieve the highest possible utilisation of his expensive equipment. He cannot afford the publicity and sales organisation of the national airlines, so much of whose "liner traffic," both cargo and passenger, is derived from appointed agents.

The negotiation of a charter requires experience and knowledge quite different from that of the travel or forwarding agent who is accustomed to booking passengers or cargo at fixed tariff rates. As membership grows, so will the Association be able to extend its sphere of influence in directing the world's first air exchange. There is no doubt as to the need for such an exchange, and those supporting it are working purposefully amid the many difficulties imposed today on the private aircraft operator, broker and chartering agent.

THE AIR FREIGHT MARKET IN 1950

AIR CHARTERING ACTIVITY ON THE BALTIC EXCHANGE

By BALTRADER

THE past year has seen a decided expansion of travel and the transport of freight by air. The use of aircraft to move ships' personnel, whether singly or as whole crews, has been well maintained. Indeed this will always be the case in view of the immense saving to shipowners by avoiding or minimising delays to their vessels. The year has provided more employment than ever before in the carriage of tourists, pilgrims and sports teams. Chartered machines have increasingly served a great variety of parties organised to take advantage of cheap rates through the engagement of the whole capacity of a plane.

A factor which increased air traffic was the invasion of Europe in the summer by American tourists who came, among other reasons, to enjoy the advantage of their valuable currency. There were also two great but opposite events which gave employment to a large number of aircraft, namely the Holy Year in Rome and the war in Korea. Aircraft chartered for parties were particularly suitable for the pilgrimage to Rome because the majority of those taking part were unable to afford the regular fares charged to individual passengers.

British operators of charter planes fully participated in the busy passenger traffic between this country, Italy, Switzerland and all parts of Western Europe throughout the summer. Their planes, mostly of Viking or other two-engined type, were suitable for the conveyance of passengers on flights of moderate duration. Unfortunately they are not in possession of a sufficient number of large four-engined planes to take full advantage of the demand for these types on the long-distance routes. The scheduled Corporations have more commitments for cargo and passengers than they are able to handle with their own planes, especially the movement of service personnel, stores and equipment to the Far East and Africa. The Halifaxes and Yorks operated by British charter companies were built for carrying heavy loads, namely bombs; while useful for the transport of machinery, such as propeller shafts, they are not best suited to accommodate the light and bulky general cargo generally consigned by air. They were indeed employed by the Corporations, but these could have used many more and did in fact, charter four-engined planes from foreign companies.

The Problem of Costs

The enormous cost of building new aircraft is a problem which faces the private operators, whose enterprise ought to be more encouraged by the Government in the national interest. It continues to be difficult to develop new openings for carriage of goods because low grade cargo can only be attracted by low rates of freight. If these are offered by charter operators in order to obtain a full cargo in both directions, shippers of valuable merchandise are inclined to expect a like reduction in rates. This only stultifies the effort to increase facilities for air transport upon an economic basis. A hindrance to the purpose has been the increase in the price of petrol during the past year. Charter operators secured a reform in the summer when it was agreed that tenders for Government employment should be submitted direct to the Ministry of Civil Aviation. Previously, tenders had passed through the hands of the scheduled Corporations, which were thus unfairly in a position, if they chose, to undercut the lowest outside tender.

Among minor airlifts for which occasion has arisen during 1950 there has been the movement of tea from Assam to Calcutta, planes returning to Assam with general cargo. This traffic was the result of the closing of the railway route by the Government of Pakistan. In October the New Zealand Government invited tenders for a link by air between North and South Islands, to operate for 250 days in the year for five years and carry between 15,000 and 20,000 tons in each direction.

Air brokers on the Baltic Exchange report an encouraging expansion of business in the past twelve months, especially in the chartering of aircraft for European travel. Progress in chartering for carriage of freights has also been achieved but the obligation to charter a full cargo for account of a single shipper imposes a heavy handicap upon the private operator. The facilities of the Baltic Exchange are being increasingly employed by trade and industry and by Government departments, both home and overseas. Its value is recognised as a centre where inquiries can be satisfied in the shortest possible time. Even more than in the case of shipping it is often essential for merchants or their representatives to be able to get into touch with available aircraft within a matter of minutes.

Super Constellations for TWA

Trans World Airlines, the pioneer and greatest user of Constellation aircraft, plans to serve its passengers with a new, larger and more powerful Super Constellation. The company has ordered ten new Model 1049 Super Constellations from the Lockheed Aircraft Corporation at a cost of nearly £6,000,000. Delivery is scheduled for the spring of 1952. With a gross weight of 120,000 lb., the Super Constellation will be propelled by four of the most powerful Wright engines built for commercial use, delivering a total of 11,600 h.p. with the aid of jet exhaust stacks. It will carry 75 passengers, with seats for seven in a luxury lounge, easily accessible on the main deck. Air conditioning and cabin pressurisation will give a ceiling 5,000 ft. above the present Constellation. TWA will have a fleet of 76 Super and standard Constellations when delivery is completed.

MODERN SHIP PROPULSION

A CONSIDERATION OF THE APPLICATIONS OF DIESEL-ELECTRIC DRIVE

By N. P. BLACKBURN *

IN PLANNING replacement tonnage today, the owner has more to consider than at any previous time in the history of merchant shipping. As a result of research and development a variety of materials and equipment is now available which results in a modern ship differing to a considerable extent from one built for the same service 25 years ago. The effects of this progress on hull construction, disposal of cargo and accommodation space, and on the arrangement within the hull itself have already been dealt with from time to time. It is intended here to consider the effect on propelling machinery, and to examine one of the types of machinery available to the owner.

The bulk of the world's merchant tonnage consists of ships whose propelling machinery develops less than 7,000 s.h.p. Despite the tendency towards higher speeds this power is likely to remain the upper limit for the great majority of ships. Apart from a lull during the war years, the trend has been towards diesel machinery and, in the class under consideration, 65 per cent of the world's tonnage completed since 1945 is diesel driven. It is possible that development of the gas turbine will alter this, but some years will elapse before such machinery is out of the experimental stage for ship propulsion.

Reliability of Diesel Engines

In recognising the diesel engine as the popular prime mover its development cannot be ignored and, as in the case of the hull, this engine has also benefited from these years of progress. Its reliability is thoroughly established and in addition bulk and weight per horsepower has been considerably reduced. While this is true of the orthodox direct-coupled engine, a very much greater saving in bulk and weight, with no loss in reliability, can be made by making use of a number of modern medium-speed engines. Engines of this type are standard production by many engine builders, they are also applied to industrial and traction duties and have reached a highly developed state. As prime movers for auxiliary generating sets they are well known in ships but it is possibly not generally realised that they are available in powers up to four figures. They are simple in construction and the parts to be removed for maintenance are light and easily handled. The overall cost of spares is low when compared with those for slow-speed direct-coupled marine engines of similar aggregate power.

Since the engines are built on a quantity production basis, and parts are interchangeable, maintenance by renewal of parts is the standard practice. The cost of such maintenance is considerably lower than that ruling for the more orthodox marine installation, since it reduces the amount of skilled labour, and the time, required on refits.

The medium-speed engine is not suitable for direct coupling to the propeller shafting, and one method of transmitting the power is electrically. Electric drive has stood the test of years of service. Early ships so equipped were the *Electric Arc* and the *Tynemount*, built in 1911, and it is at least as reliable as the prime mover itself. The system is frequently condemned as being too complicated but, when well designed, simplicity is the keynote and ships so powered do operate with entire satisfaction in the care of marine engineers, without specialised electrical assistants.

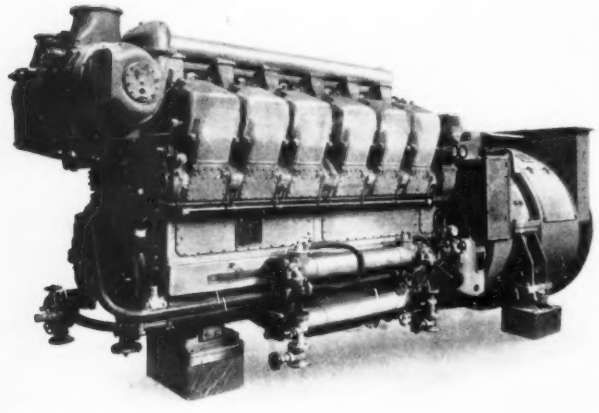
Flexibility in Operation

The electrical machines and control gear do add to the bulk and weight of the machinery and to some extent this reduces the gain made by the use of medium-speed engines, but there is still a saving, and added to this is the extreme flexibility of diesel-electric plant in its installation. The total power is usually provided by more than one prime mover, and these can be installed without regard to the position of the shafting. The engines and generators can be located in a different compartment from the propulsion motor, and the control gear mounted above the machinery itself, thus enabling the architect to make more economical use of the space within the hull.

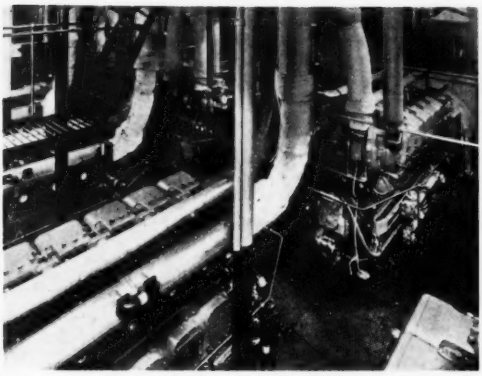
In operation, by virtue of there being more than one prime mover available, it is possible to shut down part of the machinery when full power is not required, with resulting economy. Similarly, in an emergency, a unit can be shut down for attention without complete loss of propulsion; for instance, when the propulsion power is spread over a total of four engines a loss in speed of only some 10 per cent results when one unit is shut down. In an installation which has been carefully engineered to suit a vessel's service requirements planned maintenance schedules and running surveys can be organised, reducing to a minimum the need for employing shore labour when in port, a factor which is important under the conditions prevailing today.

An electric propulsion equipment can be designed on either an A.C. or a D.C. system; in general, above 3,000 s.h.p., A.C. should be applied unless special requirements dictate otherwise. Below 3,000 s.h.p., a D.C. system is usually lower in first cost and this together with its additional electrical flexibility makes it the accepted system in this power range.

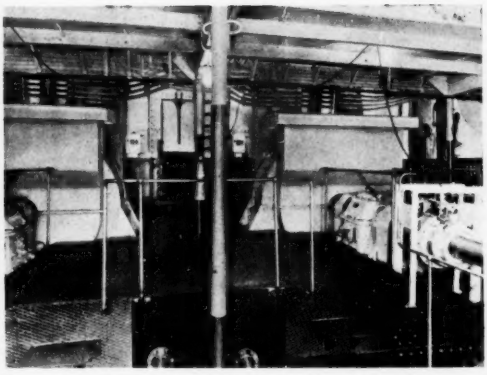
* Marine Division, The English Electric Co., Ltd.



A 12-cylinder 1,209 b.h.p. engine with propulsion generator



Engine room containing four main engines and auxiliaries



Propulsion motor room in a 3,000 s.h.p. installation

In considering where electric drive can show advantage over other forms of propulsion the flexibility of installation and operation outlined above are most important. In addition the system offers power from the main engines where heavy demands exist for duties other than propulsion. This feature is one of the basic reasons why diesel-electric drive is adopted for many special purpose craft. The manoeuvrability of a vessel powered with this type of machinery is of a high order, due partly to the characteristics of the electrical control and partly to the fact that the engines need not be stopped. Uni-directional engines are employed, and these are simpler than the reversible type and are not subject to the severe stresses imposed by the frequent admission of cold air into the hot cylinders such as is experienced in engines direct coupled to the propeller shafting.

Use in Specialised Vessels

A review of these features clearly indicates that the advantages accruing from the use of diesel-electric propulsion are so marked as to make this machinery an essential requirement in certain specialised types of vessel. Dredgers, ferries, tugs, pilot vessels and icebreakers come under this heading and it is in such that this system is becoming increasingly popular, owners having realised that no other machinery does the job so well. In general none of the vessels mentioned do long deep-sea voyages with their machinery on propulsion only, and ocean-going service must be considered if a true assessment of the scope of electric drive is to be made. There is no doubt but that, from a technical viewpoint, it cannot be improved upon and the advantages referred to are attractive in any type of vessel. Its reliability is unquestioned and its adoption becomes a question of economics; are the advantages of sufficient value to offset the higher cost of diesel-electric as compared with direct diesel drive in ships employed on long voyages?

From 7,000 s.h.p. down diesel-electric drive costs from 10 to 60 per cent more than an orthodox direct-coupled slow-speed diesel installation of equal power. This additional cost may well be offset by the diesel-electric installation making available more cargo or accommodation space. The importance of this saving will increase if the existing tonnage rules, at present under review, are revised since these rules have hitherto prevented full return being obtained from the use of a compact machinery installation.

Running Costs

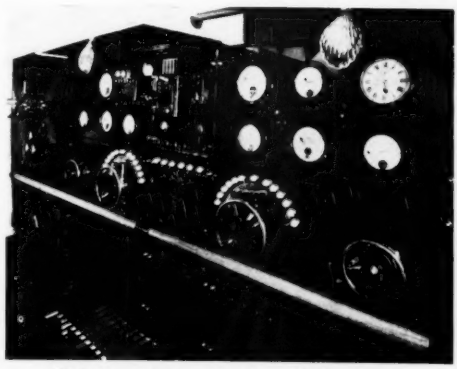
In comparing running costs it is only necessary to consider maintenance, staff, lubricating oil and fuel; all other items being common to straight diesel and diesel-electric drive. Maintenance has been referred to; these outgoings can be favourable to electric drive especially when full advantage is taken of the service offered by the majority of manufacturers building medium-speed engines. The use of modern medium-speed engines tends if anything towards a saving in staff, since this machinery is simple and a minimum of watchkeeping attention is required in a well engineered installation. The electrical part of the installation is also simple and robust; it does not call for additional watchkeeping or maintenance staff. For the purpose of the comparison staff requirements can be considered as common to the two types of machinery.

Experience in a vessel in which a total of 5,200 b.h.p. is divided between six medium-speed engines in constant operation, showed an overall lubricating oil consumption of 23 gallons per 24-hour day for all purposes. This compares favourably with the consumption figure for a direct-coupled engine of similar total power. In addition, should contamination occur, making it necessary to renew the oil in an engine, only a small quantity is lost since the sump capacity in medium-speed engines is comparatively small.

It is not intended to discuss actual fuel figures for various types of engine; such figures do vary between limits, and it is the effect of transmitting the engine power electrically which concerns us here. In electric drive losses occur in the generators and motors and in computing the effective horsepower available for propulsion these losses must be allowed for. Comparing fuel consumption on the basis of effective propulsion horsepower the consumption in a diesel-electric installation is higher than that in a straight diesel installation in direct proportion to the losses incurred in the electrical transmission system.

Direct or Alternating Current

In a direct current system the electrical losses are of the order of 15 per cent; hence the fuel consumption in such an installation is 17 per cent higher than that of a direct diesel installation of the same power. With an alternating current system the loss is reduced to about 7 per cent, resulting in an increase in fuel consumption of 7½ per cent. Any increase in fuel consumption is serious and, in a vessel which spends some 200 days a year at sea, the increase in running costs arising from the adoption of a direct current system is such as to make the project uneconomic. Possible exceptions to this could occur, but they would be very rare. The lower order of losses in an alternating current system makes this a more attractive proposition, well worthy of consideration



Main control board on thwartship gallery

for some services. Where A.C. motors can be used for driving auxiliary machinery on propulsion and cargo service it is possible to provide power for these from the propulsion machinery. A favourable case can be made for the adoption of diesel-electric A.C. propulsion where full use can be made of the flexibility of installation and operation previously mentioned. A good example of a modern A.C. installation is the Anglo Saxon Petroleum Company's *Auris*. In a higher powered vessel it would have been possible to use the main propulsion sets to supply power to the cargo pumps, in the same way as the propulsion alternators are used in the American T2 tankers. The resulting installation would have been an even better example of diesel-electric A.C. machinery applied to its full advantage.

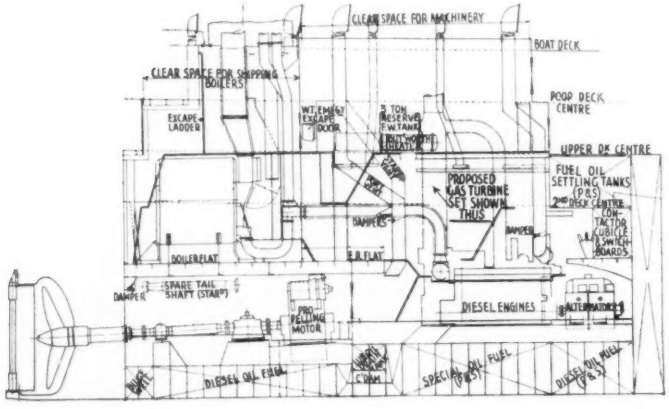
From the foregoing it is clear that while diesel-electric drive is an ideal system for special purpose craft its suitability for ocean going vessels is limited. A direct current system fails to meet requirements in such ships, for reasons of economy, while the alternating current system is restricted to powers above 3,000 s.h.p. Above this power diesel-electric A.C. propulsion has much to recommend it if a vessel in project is designed to make full use of the features inherent in this class of machinery; summarised these mainly comprise:—

1. Installation flexibility which allows the naval architect wide scope in planning the vessel.
2. Operational flexibility and economy by virtue of it being possible to shut down part of the machinery when full propulsion power is not required.
3. Added reliability arising out of the operational flexibility.
4. Power available from the main machinery for other than propulsion duty.
5. The use of relatively simple uni-directional medium speed engines.
6. Ease and reduced cost of maintenance.
7. High order of manoeuvrability.
8. The possibility of saving in weight and space.

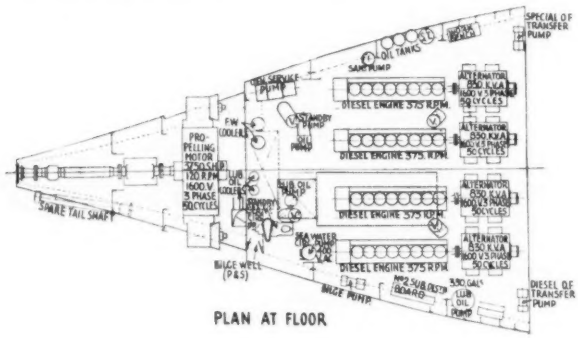
B.T.H. in 1950

Among the orders undertaken by the British Thomson-Houston Co., Ltd., during 1950, ship propulsion has been well represented by orders for electro-magnetic couplings and gearboxes. Early in the year, two 910 b.h.p. 300 r.p.m. double squirrel-cage couplings, the excitation control cubicle, and a two-pinion reduction gearbox rated at 1,800 s.h.p. and 298/130 r.p.m., were dispatched for installation in the Australian Shipbuilding Board's *Dongara*. By the end of the year another equipment had been completed for Henry Robb, Ltd.; in this case the two couplings were each rated at 1,520 b.h.p. and 300 r.p.m., and the gearbox at 3,000 s.h.p and 296/150 r.p.m. An order was also received for two electro-magnetic couplings and a two-pinion 222/100 r.p.m. gearbox for a new 9,000 s.h.p. motorship, the *Surrey*, of the Federal S.N. Co., Ltd. At the time of ordering these were among the largest couplings built in the world. Another order was received for two identical units, and the latest order from John Brown & Co., Ltd., is for two couplings and a two-pinion 225/117 r.p.m. gearbox. Each of the couplings covered by this latest order will be rated at 5,650 b.h.p. at 228 r.p.m.—these being the largest so far ordered anywhere in the world.

Some of the largest vessels completed during the year are equipped with BTH auxiliary generating machinery, among them the *Chusan* (four 850-kW 220-volt D.C. geared turbo-generator sets) and *Velutina* (two 400-kW 220-volt D.C. geared turbo-generators). Six further similar sets are being supplied for the three sister ships of the *Velutina*. Similar orders received during the year or already in hand include, in addition, six 600-kW, two 500-kW, four 400-kW, eight 300-kW, and eight 220-kW turbo-sets. Of these 80 per cent are turbo-alternator sets for ships with A.C. auxiliaries. The interest shown today in A.C. auxiliaries is further reflected in orders received covering all the A.C. equipment for a 1,100 tons coastal cargo ship to be built by Grangemouth Dockyard for George Gibson & Co., Ltd.



Main and auxiliary machinery in the oil tanker "Auris"



PLAN AT FLOOR

RADIO AND MARINE SAFETY

THE PRESENT SITUATION IN RADIO COMMUNICATIONS

By CAPTAIN F. J. WYLIE, R.N. (Retd.)

Director, Radio Advisory Service of the Chamber of Shipping

TO TAKE this title in its widest sense opens up a large field for discussion, since it may properly be taken to include communication of any kind and all the variety of radio navigational aids. A claim that interesting progress is being made in every line of this catholic assortment might be regarded merely as a platitude, because of the tradition of everlasting change which radio has established in its half century of existence. It happens, however, that today this assertion would have considerably more foundation than usual. The fluidity of the situation is due in part to international regulation and in part to technical enterprise. The purpose of this article is to discuss the changes in the maritime telecommunication field, which spring mainly from the Atlantic City Convention of the International Telecommunication Union, of 1947, and the Safety of Life at Sea Convention, London, 1948.

International Radio Regulations, 1947

Two factors are combining to force the pace of development in radio-telegraphy and telephony. Firstly, the demand for the service of radio for communication and navigation has been increasing for many years and, as more and more services claim the right to "come on the air," so less and less space is available for each. Successive conventions of the International Telecommunication Union have made increasingly stringent regulations in an endeavour to satisfy the needs of its members, and the latest of their efforts are embodied in the International Radio Regulations, 1947. The changes have two main intentions, to pin the user more closely to his assigned frequency and so prevent him from interfering with others, and to rearrange the sections of available frequencies, which are allocated to each type of service, into a more coherent and more economical whole.

The impact of these regulations on the marine user has also two facets. His equipment will have, after a certain date, to comply with the reduced tolerances (greater frequency stability) laid down, and it will, on some other date, require to be shifted into the new section or band of frequencies allocated to his type of service. The tolerance rules affect radio transmission in all bands, long, medium, intermediate and short waves, but the major changes in frequency allocation will be in the short wave bands.

Safety of Life at Sea Convention, 1948

The second main cause of change in telecommunication matters is international agreement to raise the standard of the contribution of radio to Safety of Life at Sea. The Convention of 1948, when it comes into effect, will require improvements to the installations in ships, thus increasing their own safety, and will increase the number of ships compulsorily equipped with certain apparatus, thus enabling more of them to contribute to the general good. The main character of this increase is to require:—

All ships fitted with radio-telegraphy to maintain a continuous watch on the distress wave while at sea, either by human watch or by the automatic alarm. This implies that cargo vessels down to 1,600 tons gross, as well as passenger vessels which do not keep continuous human watch, will have to install auto-alarm equipment.

All ships down to 1,600 tons gross to install radio direction finding equipment.

All ships between 500 and 1,600 tons gross to carry radio-telephone equipment if they do not carry radio-telegraphy.

The required improvements in the installations take the form of complete independence of the emergency equipment in radio-telegraph ships, minimum range of communication for all compulsorily fitted ships, general improvement in receivers, direction finders and auto-alarms, provision of loud speaker watch facilities and improvements in lifeboat radio.

Changes in Equipment

It will readily be understood from this that no single major item of equipment which just satisfied the previous regulations will comply with the combined requirements of Atlantic City 1947 and SAFCON 1948. In fact the complete range of normal radio-telegraph and D/F equipment is in the process of redesign by the manufacturers. This burden falls on the General Post Office organisation as well as on the development establishments, since all the apparatus has to receive type approval and pass the severe climatic and durability tests now specified. A small number of equipments to the new standard is already available, and the complete radio-telegraph series seems likely to be offered in time by at least five companies.

Hitherto, the fitting of radio-telephony in cargo vessels below 1,600 tons gross has been on a voluntary basis. The new compulsory installation Rules for these vessels, down to 500 tons, will require a higher standard of equipment and an emergency source of power, separate from the ship's main electrical installation and propelling machinery. There is likely, however, to be some period of grace for those ships whose present equipment does not fall far short of the new requirements. Already radio-telephony sets to the higher standard are available.

G.P.O. specifications for most of the items concerned have been available, at any rate in provisional form, for two or three years. Unfortunately the complications of the changes, some of which are interrelated, has prevented complete stabilisation of the situation, and this has not been helped by the delay in acceptance of the 1948 Safety Convention by the requisite number of countries. The rules which arise from this Convention come into effect one year after the official date of ratification, and the period of grace allowed for each particular change of equipment is calculated from the date of coming into effect. Further, the period of grace depends upon whether or not a particular equipment is installed before or after the latter date. Hence, not only do manufacturers not yet know how much time is available for the production of the various items affected, but shipowners, who at the present time are concerned with new installations or with renewal of rental contracts, are unable to estimate how long the equipment involved will be permitted to remain in use.

The New Radio Rules

The Ministry of Transport's Ships' Wireless Working Party, on which all the interested parties are represented, has been considering successive drafts of the new Radio Rules for some two years and is still considering detailed technical amendments. Under the Merchant Shipping (Safety Convention) Act, 1949, the Minister of Transport takes powers to make these Rules and to include in them schedules which will specify precisely the minimum requirements of all the radio equipment concerned and the dates upon which each change becomes compulsory. It will probably be an advantage to have all aspects of the marine radio requirements dealt with in a single document, but the legal complications involved have not accelerated the production of the final form. In fact there will be two documents, as the Direction Finding Rules are being dealt with separately and have not yet been seen in draft.

Effective Date for the New Radio Rules

It is believed that ratification of the Safety Convention is expected early in 1951. It must be admitted that these hopes have already suffered periodic frustration for a whole year,

but the necessary quota of acceptances is understood now to be almost complete. There is, therefore, some likelihood that the basic date from which the whole structure will become operative will shortly be known. The new Radio Rules must be available then or shortly afterwards, if compliance with them is to be at all possible. When that Rubicon is crossed, the equipment aspect of the matter will be settled, though the other major problem, that of re-organising the basis of the assignment of frequencies, will not.

This reorganisation may be considered in two stages; obtaining an internationally agreed frequency plan, and bringing it into effect. The plan is already in a fairly advanced state. The broad principles laid down in the International Radio Regulations, 1947, were applied in the draft plans made in 1949 by the three Regional Radio Administrations insofar as those frequencies which can be considered on a regional basis are concerned. The European Broadcasting Convention made a plan at Copenhagen in 1948, and this, with some of the consequential changes to non-broadcasting services, has been largely brought into effect. The short wave bands, which have to be considered on a world wide basis, have not yet been fully planned and neither has the necessary coordination of regional plans been carried out. This was to have been done by the Extraordinary Administrative Radio Conference at The Hague, in September, 1950, but the international political situation caused the postponement of this Conference until August, 1951. No finality in frequency planning can therefore be expected until the end of 1951 at the earliest, and a successful outcome will depend on the extent to which general cooperation can be assured.

Change of Frequency

As far as ships are concerned, the main alterations in frequency assignment will be in the small ship and short wave bands. It is likely that the number of changes will be very great. Since the reduction in the tolerable departure from assigned frequencies virtually compels the use of crystal-controlled equipment, many thousands of new crystals will need to be manufactured, when the frequencies have been assigned, and then distributed and fitted to ships. As the latter process is generally regarded as one which requires the expert assistance of shore depots, it will obviously be lengthy. Thus, a further year may pass, after the new frequency plan has been made and accepted, before the changes become universally effective.

The road towards better communication and hence greater safety is, therefore, a rocky one; the beginning is hardly in sight and the end is shrouded in the mists of uncertainty. The improvement in equipment in itself will certainly contribute a great deal and it is right that the material should be changed first, but until the re-organisation is effected, the full benefit will remain illusory.

Progress in Short Wave Telegraphy

Apart from the changes to be brought about by regulations, there is an interesting trend towards the use of short wave telegraphy and the world wide service it makes possible. Some shipowners regard it as a *sine qua non* of the operation of their fleets, that their vessels at sea should be able to contact shore radio stations wherever they may be, and it does not seem that this requirement is confined to any particular type of trade, although it is probably of more commercial consequence to some than to others. It is estimated that the number of vessels registered in the U.K. and equipped with short wave telegraphy was about 750 in 1939, and over 2,000 in 1950. This is a sign of the times, and is one of the contributory causes of congestion and the need for re-organisation. Further indications of the trend are the intention to provide a distress frequency in the short wave band and the requirement for short wave transmission in future lifeboat radio equipment.

V.H.F. Radio-Telephony

A statement on progress in telecommunications would be incomplete without a reference to very short wave or very high frequency (V.H.F.) radio-telephony. The facility afforded by this equipment is high quality telephony at short range—probably 15-20 miles reliable maximum. As an international marine system it is in its infancy, but its successful use for local shore services such as police and fire organisations, as well as for some progressive towing and harbour supervision services, has demonstrated its effectiveness within the limitation mentioned. There is already some basis of international agreement on frequency assignment and the frequency band 156-174 Mc/s has been allotted in part to maritime mobile services. Very tentatively there may be said to be four kinds of service envisaged—port communication for safety and general purposes; port communication for navigation and docking service; public correspondence, which involves connection by radio to the shore public telephone system; and intership working.

So that ships and their owners might be able to study the economic advantages of the use of such facilities in the major ports of the world, it would be pleasant to be able to record that international agreement had been reached upon the services to be provided there and on the frequencies to be used. It is therefore a matter for regret that no such assurance can be given, despite the international recommendation that use should be made of V.H.F. wherever possible for short range services to reduce congestion in the medium and intermediate wave bands. There is international agreement on one channel only, namely 156·8 Mc/s, for the purpose of "inter-ship and ship-shore safety and calling." It seems that this potentially valuable service must develop locally before any large scale organisation is framed. This might be quite a natural and satisfactory procedure, if it could be presumed that a ship equipped with V.H.F. would be able to take advantage of any such local service which happened to be established. Unfortunately, this cannot be presumed, because V.H.F. equipment for marine purposes, unlike its short and medium wave counterparts, is virtually restricted by economic design to a narrow band of frequencies embracing perhaps six or eight channels, whereas the whole available frequency band contains about 90 communication channels of which approximately 50 may be made available for marine services.

To this unsatisfactory state of affairs must be added a slightly Gilbertian situation. It so happens that one of the vital characteristics of V.H.F. radio-telephony is the system of modulation employed, and design engineers have been more greatly at variance over the relative merits of the two possible systems than over any other single radio problem. They have been arguing the point for some seven years and still disagree, with the result that the United States and the United Kingdom have adopted different systems. This may seem trivial perhaps until it is explained that equipment in one system cannot communicate with equipment in the other. Had this difficulty been resolved, the record of progress in the direction of a worldwide plan for V.H.F. might be different.

Public Correspondence Service

As it is today, a V.H.F. public correspondence service is in existence on the Thames, enabling vessels which are in or approaching the river and are fitted with the necessary equipment to communicate with anyone who is connected to the public telephone system, the service being of high quality and free of interference. The port authorities at Liverpool and Sunderland have V.H.F. systems for communicating navigational information and docking instructions to ships which have been boarded by a pilot carrying a portable equipment or which have their own equipment installed. A ship with permanent equipment suitable for Liverpool could operate with Sunderland. She could not use the Thames public correspondence system, but it is probably right that these two kinds of facility should be kept separate. Whichever of these systems she was equipped for, however, she would be unable to communicate in the harbour advisory public correspondence services established in the U.S.A.

Such systems, when concerned with navigational matters, should be able to contribute greatly to safety, particularly in thick weather, and do so in fact where they are established. It is possible of course, at some additional expense, to provide equipment capable of switching from one form of modulation to the other. It seems a pity, however, that the designers cannot agree on a common language.

It will be seen that radio fashions are changing at the present time with even more than their traditional speed, and that there are good reasons why they should do so. When the period of transition which must elapse before the new regulations become completely effective is over, there can be no doubt that the standard of radio communication efficiency and its contribution to marine safety will be greatly enhanced, and it is to be hoped that, for a time at any rate, this standard will have overtaken the ever increasing congestion of the maritime communication channels.

THE SUM of £25 has been presented to King George's Fund for Sailors by the Blue Star Line from collections taken on board the company's vessel's during the past year.

THE MOTORSHIP *Santa Ursula*, launched by Howaldtswerke, Kiel, on December 16, is the first of four vessels building for the Hamburg-South America Line to reopen the South American service in 1951. Each will be of about 6,3000 tons gross, with accommodation for 12 passengers and a speed of 12 knots. Before the war the company's flagship was the *Cap Arcona*, 27,000 tons gross. She was sunk in the Baltic in 1945.

GEARED DIESEL MACHINERY

A REVIEW OF TECHNICAL FACTORS AND OPERATING ADVANTAGES

By DAVID BRUCE*

THE GEARED diesel motor vessel has come to stay, for it is ideal in many ways for various types of vessel from tugs and coaster, to cross-channel passenger vessels, tramps and liners. It is a well proved propelling machinery arrangement and vessels with this system of power transmission are in operation with powers varying from 680 b.h.p. to 30,000 b.h.p.

The vessel referred to as having 30,000 b.h.p. is the passenger ship *Willem Ruys*, built in 1947, and a brief description of the machinery is worthy of note. The vessel has accommodation for 840 passengers and has a displacement of 21,300 tons; the length is 607 ft. and the breadth 82 ft. Eight engines operating at 214 r.p.m. are used and these are connected four and four on to the two propeller shafts through electric couplings and gearing. The propeller shaft speed is 125 r.p.m. The maximum output of the machinery is 30,000 s.h.p. giving a speed of 24 knots, while the cruising power is 27,000 s.h.p. giving a cruising speed of 21 knots. It is interesting to note that if one engine is cut out for any reason the speed drop is only from 21 knots to 19½.

Vessels with this type of machinery were being built abroad long before their adoption in Great Britain, and among the earliest vessels using this type of transmission, built in this country, were the well-known Admiralty rescue tugs, of which the *Bustler* and *Turmoil* may be cited as they have earned an enviable reputation both in wartime and since their transfer to private owners. Since these rescue tugs were built there have been other ships constructed or under construction in Britain using geared diesels. These include coasters, coal carriers and deep-sea vessels.

Simple in Principle

The principle is simple, for instead of one large engine direct coupled to the propeller shaft, one, two or four medium-speed engines can be connected through couplings and gearing to the propeller shaft or shafts. The revolutions of the geared engines are higher than those for direct drive, the most efficient engine speed being chosen, while the most efficient propeller speed is obtained by the introduction of the gearing. It should be stressed, however, that higher revolution speeds do not mean more wear on the moving parts, as the piston speed of the geared engine is not greater than for the direct drive engine. The engine can, of course, be connected directly to the gear shafts but it is desirable to fit a flexible or slip coupling between them. Such couplings do not transmit torque fluctuations and so provide almost completely even torque to the gears, whereby the propeller runs more smoothly than when driven by a directly coupled diesel engine. The possibility of vibration and noise in the vessel is reduced.

Fig. 1 shows two five-cylinder engines driving through electric couplings and gearing. It will be seen that the engines are of the same hand and that the controls are on the front of the near engine, with control rods passing to the further engine. Gear is provided for independent control when necessary. Where four engines are coupled to one propeller shaft they are arranged in pairs, with the couplings and gearing placed between the fore and aft pairs of engines. The propeller shaft runs between the aft pair of engines.

There are four main types of coupling which can be suitably employed, i.e., hydraulic, electric, pneumatic or flexible. The principle of the hydraulic coupling is too well known to warrant further description, but Fig. 2 shows an assembly of hydraulic couplings and gearbox with built-in thrust block and is shown here to emphasise the point that there is no solid connection between the driving and the driven members of the coupling. In this case the torque is transmitted through the constantly flowing and rotating mass of the fluid, this fluid being lubricating oil. The clearance between the two halves of the coupling is 5 to 15 millimetres according to the size of the coupling and the power to be transmitted. The electric type coupling is illustrated in Fig. 3 and consists of an inner and outer member with an air gap between the two portions, and of course here again there is no solid connection between them. In action the inner member is excited electrically and the poles on the outer member cut through the field so created, and this causes the engine power to be transmitted.

Fig. 4 illustrates an interesting machinery arrangement, in which a single diesel engine of 300 r.p.m. is driving through an electric coupling and gearing on to the propeller shaft. This machinery is installed in a collier which has to pass under sixteen Thames bridges. In this case the propeller speed was 100 r.p.m. A pneumatic type coupling is illustrated in Fig. 5 in which the drive is transmitted through a pneumatic tube under internal air pressure which when engaged transmits the necessary power. Flexible couplings can also be used such as the well-known Bibby coupling and installations using such a coupling are in hand. Fig. 6 shows one of a pair of engines on the test bed with the Bibby coupling and a reverse gearbox.

The objection which is sometimes raised against the

* Managing Director of British Polar Engines, Ltd.

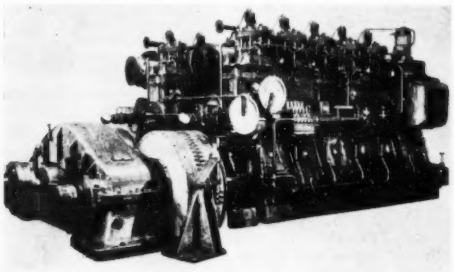


Fig. 1. Two 5-cyl. engines driving through electric couplings and gearing

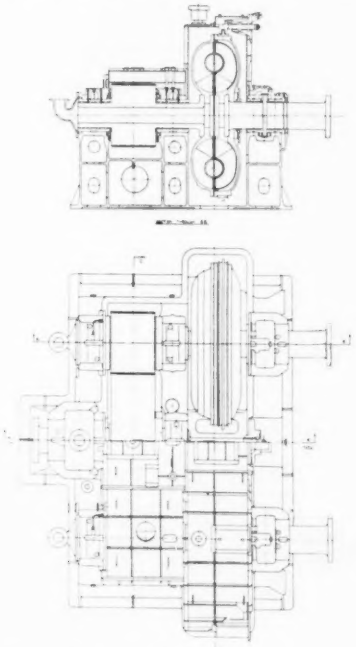


Fig. 2. Assembly of hydraulic couplings and gearbox with built-in thrust block

principle is that it involves the use of a larger number of cylinders and, of course, more moving parts, but this so-called disadvantage is more than offset by the advantages inherent in the use of geared diesels and will be considered later. The advantages accruing from the use of geared diesels are many, some of these are perhaps of a temporary nature, while the remainder are of permanent value. The first advantage to be considered is a temporary one, but under conditions ruling today it a very important one, in that the present-day normal delivery period required for a slow-speed engine of 2,000 b.h.p. and upwards may be from two to three years. Medium-speed engines, couplings and gearing can be delivered in considerably less time, possibly 12 to 15 months.

The second of the temporary advantages lies in the conversion of existing vessels, either steam or diesel. An excellent example of such a conversion is the motorship *Formosa*, where an old type diesel was removed and four medium-speed engines with gearing and electric couplings were installed with an appreciable increase in engine power. A similar case exists for the removal of the steam machinery in some of the wartime vessels which were built as a matter of expediency. In such conversions the gear ratio can be conveniently arranged to retain the existing propeller and shafting.

Permanent Advantages

Among the permanent advantages is saving in weight, the weight of engine, coupling and gearing being much below that of a corresponding direct driven engine, as the following examples will demonstrate:—

Engine Power	*Direct Drive Machinery*	*Geared Diesel Machinery*
1,600	120 tons	95 tons
4,285	293 tons	218 tons

In both cases corresponding items have been included in the comparison and the saving in weight is based on conservative figures.

Perhaps the major consideration in any marine installation, assuming reliability, is first cost, and it is here that the geared installation often scores very heavily over the direct drive installation. One example taken from recent quotations will serve where the power involved was 3,000 b.h.p., the price difference being £7,550, and this difference in price of the machinery does not represent the full saving as due to the lower headroom, lighter overhauling parts, lighter seatings, etc., the shipbuilders estimated that the total saving would be at least double this figure.

The present-day diesel engine of reputable make can be taken as being reliable in service, having stood up to the only real test, i.e., long periods of successful service at sea under all conditions. The same remarks apply to single reduction gears made by reputable firms, and therefore it only remains to consider the reliability of the various types of coupling.

(a) Hydraulic couplings were fitted to the Admiralty rescue tugs working in conjunction with engines operating at 320 r.p.m., and the power transmitted by each coupling was 1,650 b.h.p. These vessels had been in service for nearly ten years under very arduous conditions and have been entirely trouble free. Hydraulic couplings have been in service in Continental vessels for much longer periods.

(b) Electric couplings of British manufacture were first installed in two coal carrying vessels in 1947. The engine speed was 300 r.p.m. and the power per engine was 1,500 b.h.p. Up to date these couplings have been trouble free, but much longer experience has been gained on the Continent where electric slip couplings have been operating with every satisfaction since 1937-38.

(c) Air operated couplings have not so far to the writer's knowledge been installed in any British vessel, but there are many such installations in the United States which have been in operation for a considerable period of years. Some of the American vessels came under the writer's notice during the war, and he found the various engineroom staffs were perfectly satisfied with their performance. Bibby couplings for various purposes have been in use for many years and have proved their reliability.

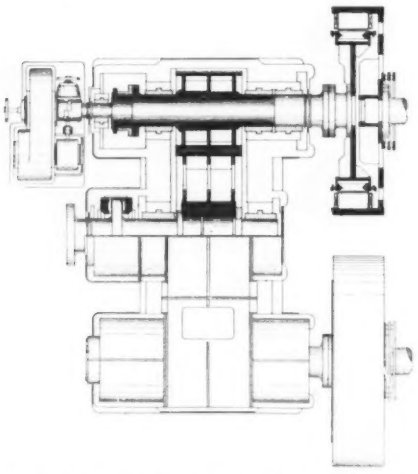


Fig. 3. Section showing electric coupling and gearing

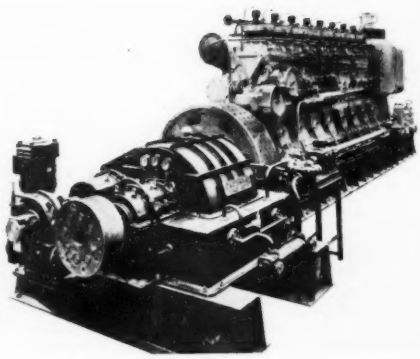


Fig. 4. Single diesel engine with electric coupling and gearing

Running Costs and Maintenance

The saving in first cost has already been mentioned, but there is still the economy of operation to be considered. As both engines in a twin-engine geared installation are operated from one common control point, and as the daily routine is simple there is no difference in the number of engineroom staff, although even this point is arguable in that all readings on the geared engines can be taken from the engineroom floor plates and at most there is only one platform on the engine at the cylinder heads, while in the direct drive case at least three platforms in the engine height are generally necessary. The chief economy, therefore, comes from running costs and maintenance.

It is a well established fact that the reliability of any machinery is related to the amount of regular attention which it receives, and in the case of the medium speed diesel the time to open up and examine any part, as for instance a piston, is so short that one can be drawn, examined and replaced in a matter of hours during a very short stay in port. A regular routine is a simple matter, whereas in the large slow speed engine it becomes a major operation to withdraw a piston for examination. Furthermore, as the cost of the engine in a geared installation is much less than that of the direct drive engine, the cost of replacement parts is also considerably lower.

As the spares specified by the classification society are only affected in a minor degree by the number of engines it follows that the quantity of spare gear to be carried will be practically the same in number for both types of machinery, but in the geared installation these are smaller and cheaper. The fuel consumption curve for the medium speed engine is for all practical purposes level between three-quarters and full load and rises between three-quarters and half load. It follows, therefore, that for a slow speed of the vessel through the cruising speed up to full speed the fuel consumption per b.h.p. can be kept at the most economical figure whereby worthwhile economy can be achieved.

There is, of course, a small loss of power through the couplings and the gears. The makers of hydraulic couplings

claim the loss of efficiency can be kept as low as 1 per cent should space be available but normally a loss of 2 to 2½ per cent can be expected. For the electric couplings in the coal carrying vessels mentioned above, the actual drop in efficiency was about 1.5 per cent allowing for excitation losses. No figures are available for the present as to the efficiency of the air operated couplings. The loss of efficiency in the gearing can be taken at a figure of 2½ to 3½ per cent also.

The overall efficiency is high, as it is possible to run the engines at their most suitable speed, and at the same time to choose the most suitable propeller speed. The combination of these two features of maximum engine and propeller efficiencies will more than compensate for the loss of efficiency in the coupling and gearings. The foregoing applies particularly where the direct drive engine could, according to the ship's dimensions, be running at say 250 r.p.m., whereas if geared engines were used the propeller revolutions could be reduced to say 120, giving a gain in propulsive efficiency of some 15 per cent compared with the small loss of approximately 5 per cent through the couplings and gearing.

The question of overhauling has already been mentioned briefly above, but it is a point worthy of special mention. The weight of any part of the engine is naturally dependent on its cubic size and in the geared sets, pistons, cylinder cover, connecting rods, etc., are so very much smaller than for the slow speed engine, and therefore, though there are more of such parts they are easily handled, whereas in the

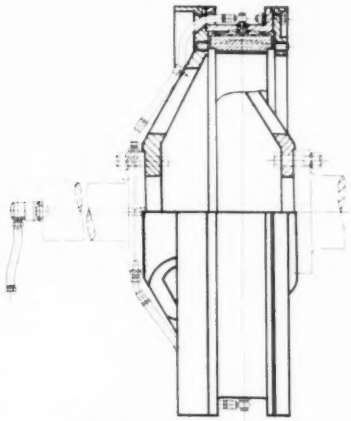


Fig. 5. A pneumatic coupling

larger engine the work involved is heavy and laborious. For instance, the piston and piston rod in large slow speed engines may weigh as much as 4 to 5 tons, while in a medium speed engine it will only be a matter of 7 or 8 cwt. It follows that the time spent in port for survey or overhaul will be much shorter in the geared installation with a consequent saving in "idle" time. A further point which can be considered here is that in the case of one part giving trouble at sea and necessitating immediate attention, it would mean a complete stoppage of the vessel in the case of the direct drive engine, whereas in the geared job power would still be available from one engine while the trouble on the other was being attended to.

Manoeuvrability

The geared installation meets all the requirements of manoeuvrability and concedes nothing on this point to its slow-speed rival. It is sometimes claimed that in a geared installation, when a number of consecutive manoeuvres are to be expected, one engine can be kept running ahead and one astern, the respective coupling being thrown into action as required. In the writer's opinion this is a claim which, while true in itself, need not be stressed unduly except in special cases, as normal manoeuvring does all that is required or desired plus the fact that full power is available ahead or astern as called for.

The geared diesel installation is readily applicable to all types of vessel up to powers of say 9,000 b.h.p.; above this figure it is applicable to special cases. The following

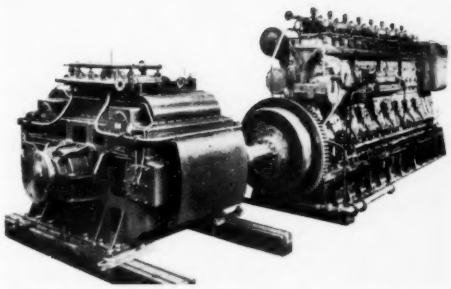


Fig. 6. One of a pair of engines with Bibby couplings and a reverse gearbox

list covers vessels where geared installations have a peculiar and special interest:—

(a) Passenger vessels where the height of the engine affects the accommodation, and where the low head room required for the geared diesel arrangement permits of a much better use of the spaces adjacent to the engine room. A further saving in height can also be attained by placing the centreline of the engine below the centreline of the propeller shaft. In such vessels (as in many others) the low centre of gravity of the machinery is advantageous.

(b) High powered tugs where a large amount of power must be available when towing or when an urgent call is received, while fuel economy is obtained at other times when full power is not required.

(c) Vessels operating in open waters but making port in the upper reaches of rivers such as the Thames where slow speed is required for passing under bridges or in congested waters.

(d) Conversion of older vessels. In this case greater power can often be obtained without modification to the engine room casings and consequent modification to the space outside of the casing whether this is passenger or cargo space. If the conversion is to be done by corresponding slow speed engines, new and expensive seatings will be required, whereas in the geared installations the new seatings will not require to be so heavy.

(e) Fruit carrying or similar vessels where the outward journey can be made at cruising speed but where a high speed is often necessary in order to catch a special market.

(f) Tramp vessels could use the geared installation with success, the above advantages applying to a large extent with the additional advantage that as these vessels go into many out-of-the-way ports, where full repair facilities are not always available, the geared type engine could often be dealt with where the direct drive engine could not.

(g) Bulk cargo carriers can profitably employ geared installations where the propeller can be made to suit the vessel instead of the vessel being modified to suit the propeller.

In conclusion it is interesting to note that among the machinery arrangements for other vessels at present being equipped with geared diesel machinery in this country are the following typical sets:—

No. of Engines	Total S.H.P.	Eng. Speed	Type of Coupling	Propeller Speed
Two 5 cylinder	1,700	300	Electric	145
Two 8 cylinder	2,850	300	Hydraulic	145
Two 8 cylinder	2,900	300	Bibby	150
One 6 cylinder	500	350	S.L.M.	175
Two 3 cylinder	285	600	S.L.M.	200
Two 8 cylinder	8,000	225	Electric	100
Two 9 cylinder	9,000	225	Electric	100
Two 10 cylinder	9,000	225	Electric	100

THE INSTALLATION of a five-bladed propeller was completed recently by Todd Shipyard Corporation's Brooklyn yard on the Isthmian Steamship Company's *Steel Recorder*, a standard C3 cargo vessel, to offset the excessive tailshaft failures being experienced in this class of vessel. It weighs 39,000 lb., compared with 44,000 lb. for the original four-bladed propeller. Reports from the vessel to date indicate an increase in speed and a saving in fuel. Vibration formerly experienced in the ship's double reduction gears has been almost entirely eliminated.

MARINE SUPERHEATERS

EFFICIENCY AND ECONOMY IN THE USE OF STEAM

By R. G. C. RICHARDSON, M.I.Mar.E. *

It is an undisputed fact that superheated steam is essential for economical operation of marine steam engines, ranging from the reciprocating engine-Scotch boiler installation with moderate pressures and temperatures up to the watertube boiler-turbine installation where elevated pressures and temperatures are employed. This range includes deep-sea tugs, dredgers, coasting vessels, trawlers, cargo vessels and passenger vessels.

It has been considered in some instances that vessels on short-sea voyages are not suitable for the application of superheat, but this is a fallacy, as it is the number of steaming days a vessel has per annum which constitutes the economic criterion. It has also been said that the costs involved in the maintenance of superheater installations in short-sea traders with frequent stays in port outweigh the advantages of superheat. This may have been true in the past, but is not true today because, as will be shown below, superheater installations can be designed so that their protection and care working in and out of port, and in port, is provided for automatically.

Two propulsion plant combinations, namely that of Scotch boilers with reciprocating engines and the other of watertube boilers with steam turbines have already been mentioned: there is, however, yet another combination, i.e., Scotch boilers with steam turbines, and this is in fact very simple and economical. Certain criticisms have been levelled against this combination, due to the upper limit of steam temperatures which can be obtained from Scotch boilers with smoketube superheaters, i.e., 600 to 620 deg. F. To overcome this difficulty two well tried methods are available. The first of these is to extend the element ends throughout the length of the smoketubes into the combustion chamber proper, and the other consists in suspending the superheater elements completely in the combustion chamber. Undoubtedly these methods do result in increased temperatures, the former being capable of producing temperatures up to approximately 650 to 675 deg. F. and the latter up to 750 deg. F. However, while the steam temperature desired can be obtained by these methods, it is doubtful whether this achievement outweighs the disadvantage of exposing the superheater elements to the danger of overheating. Moreover these arrangements make it difficult, if not impossible, to gain access to smoketubes, combustion chamber and stays. Even in well built and carefully operated Scotch boilers leakages can occasionally occur at the points where the smoketubes are expanded into the tubeplate. To stop such leakages by re-expanding the smoketube is a relatively simple job, but it is not so simple to do this when superheater elements have to be removed from the smoketube before this can be carried out.

In order to allow the shipowner to retain the robust and simple Scotch boiler as steam generator and yet to give the highest possible efficiency at the turbine, the employment of an independently fired superheater such as shown in Fig. 1 is proposed. This makes it possible, in the case of an installation comprising four superheated boilers, to delete one boiler and to fit in its place an independently fired superheater. No superheaters need then be fitted in the smoketubes of the three remaining Scotch boilers, and the tube diameters can be reduced to 2½ in., which will result in increased boiler heating surface and boiler efficiency.

Independently Fired Unit

The independently fired unit will increase the steam temperature to 850 deg. F. if desired, or to any intermediate temperature. In such an arrangement all steam from the three remaining boilers would be passed through the independently fired superheater elements, and the final steam temperature would be determined by the amount of oil burned in the independently fired superheater. Compared with a plant equipped with Scotch boilers at 250 lb. pressure and 600 deg. F. total temperature, the use of an independently fired unit increasing the steam temperature to 800 deg. F. would result in an economy of approximately 7 per cent. The independent superheater unit is designed for gas recirculation and an economiser is fitted in the gas outlet side, reducing the gas exit temperature to approximately 400 deg. F. The recirculated gas is introduced into the furnace through ports in the front wall. This has the effect of keeping the furnace and its brickwork relatively cool. The amount of gas returned to the furnace and that allowed to pass straight up the funnel is regulated by dampers. The provision of the economiser which increases the feed water temperature by 100 deg. F., reduces the gas temperature to 400 deg. F., with an efficiency of approximately 82 per cent. The economiser also saves the fitting of a live steam heater or the bleeding of steam from turbine stages for feed heating purposes.

By adopting the present proposal of installing an independently fired superheater, the shipowner would retain the simple Scotch boiler (capable of obtaining efficiencies as high as 80 per cent) and at the same time, by resorting to the independent superheating of the steam, would achieve economies approaching those obtainable in watertube boilered vessels but without having to employ the accessories which are required with the latter, that is, closed feed systems, distillers, etc. If any criticism can be levelled against a Scotch boiler, this would apply to the high unit weight of the boiler per lb. of steam produced. This can be a serious drawback if deadweight is of primary importance in a vessel. But, on the other hand, it can be said that in vessels in certain trades the deadweight of the boiler is useful from the aspect of stability.

As was stated above, it is recognised that superheated steam is essential for economical operation of prime movers, but there is another application which is not universally appreciated and that is the application of dry steam in diesel vessels such as tankers, where heavy steam demands are required in port, and this may also apply to diesel vessels with steam-driven auxiliaries. As it is the practice in many diesel ships to fit at least one Scotch boiler for auxiliary steam, the inclusion of a smoketube superheater to give 50 deg. of superheat would result in economies. This super-

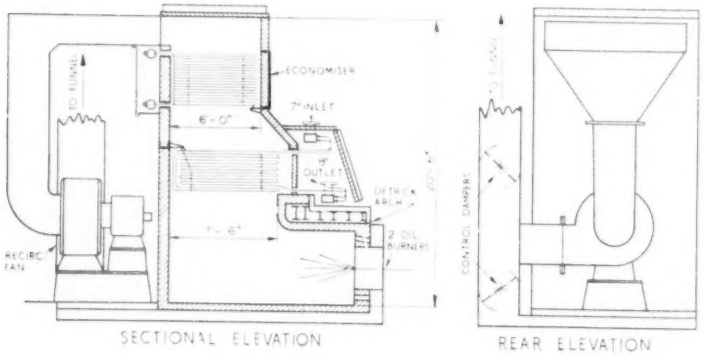


Fig. 1. Independently fired superheater

* Of the Marine Department of The Superheater Co., Ltd.

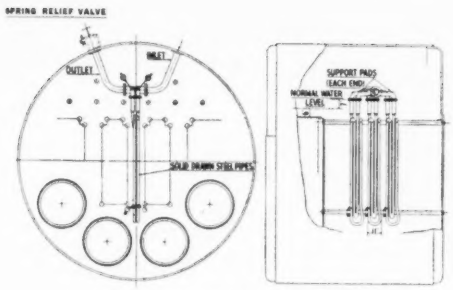


Fig. 2. Desuperheater in boiler

heater would be designed so that its safety would always be assured. There would be no question of restricted free gas areas through the smoketubes as elements would only be fitted in the plain tubes of the boiler and, to ensure safety against damage, the element ends would be positioned well back in the smoketubes.

In the case of a tanker where the cargo pumps are operated on saturated steam, the loss of water, when the considerable distance between the cargo pumps and boilers is considered, must be large, owing to the loss when draining the steam pipes. There will also be considerable condensation losses even when the cargo pumps are working. Apart from the economies accruing from the use of dry steam, the amount of fresh water which would be saved by eliminating condensation would amply repay the initial cost and pay dividends.

It is unfortunate that in many instances the application of superheaters is considered a possible source of trouble, but it has always been the endeavour of the author's company to design and manufacture superheaters of a design to obviate the troubles which have been experienced in the past. These troubles have generally been as follows:—

1. Leaking joints.
2. Leaking drain valves due to their operation in "cracked" open position to circulate elements.
3. Lubricating oil in boilers due to its excessive use, especially in auxiliary engines operated on superheated steam.

Marine Superheaters

As regards point (1), there are three main types of joint (excluding, of course, expanded joints). Such joints are known as "S," "R.B." and "Concen" ball joints respectively, and they were developed in the order stated. The "S" type is the original joint, i.e., spigot and faucet with jointing material between the two faces. The "R.B." is a block joint, but with very thin jointing between the faces. This joint has also the advantage that individual elements can be removed without disturbing others. The latest "Concen" ball joint is the best type of joint possible. It is completely self-aligning, and steam tightness is obtained by a line contact between the ball on the element end and the cone seat in the header. Thus no jointing material is required. It will also be noted that with this joint the advantage of the "R.B." type is retained in that individual superheater elements can be removed without disturbing other elements. These two types of joint constitute a great advance over the original "S" type, where it was possible to have six joints in a row, and if leaks occurred on the joint nearest the tubeplate it was necessary to remove five elements before the original leak could be corrected. The "Concen" joint has been applied to all types of boiler, marine, locomotive and land, and has always proved most satisfactory. It is the practice of the author's company to adopt this joint for temperatures not exceeding 850 deg. F., which gives a liberal margin of safety. The joint is simple to fit and maintain, and all that is required for its satisfactory and lasting performance are unbroken line contacts on both the ball end of the cone seat and a clean joint.

Concerning leaking drain valves (2), the protection of superheaters in main boilers which have to be used for discharging purposes and when firing conditions fluctuate during manoeuvring has always been a cause for concern, and various methods have been adopted. One method was to use the drain valves on the superheated headers to create circulation by having these valves "cracked" open, but this was always an ineffectual method as the amount of steam which was allowed to escape through the valve did not pass sufficient through the elements and could not, therefore, protect them against overheating. It also resulted in the valve seats and lids becoming scored which ultimately led to valve leakage. As the drain pipes from these valves are usually open-ended, any leaks are always in evidence. This is apt to create the impression that it is futile to fit superheaters to gain economies and then lose part of this economy owing to the leakage of drain valves.

With regard to oil in boilers (3), the occurrence of oil in boilers was a consequence of the use of superheated steam on engineroom auxiliaries—again in an attempt to create circulation of steam through elements for their protection. No doubt when a vessel is being manoeuvred in and out of port the amount of steam taken by the engineroom auxiliaries would be sufficient to protect the elements, but this amount is not sufficient to afford protection when a main boiler is steaming at full evaporation for discharging purposes; moreover, some 90 per cent of this is used as saturated steam. For this reason the use of superheated steam for engineroom auxiliaries did not achieve the purpose for which it was intended, namely, complete protection of superheaters. Furthermore, the employment of internal lubrication for the auxiliary machinery was mainly responsible for the occurrence of oil in feed water, as the oil could pass through into the exhaust system from which it was difficult to remove even with the most efficient filters.

Desuperheaters

In order to provide complete protection for superheaters under any conditions of boiler steaming, the installation of desuperheaters is proposed. A typical installation is illustrated in Fig. 2, which shows a simple three-element type of immersed desuperheater and collectors. It will be noted that these coils are fitted between the nests of smoketubes and are immersed in the boiler water. The collectors are connected by steam pipes through the desuperheater inlet and outlet valves on the boiler shell. The steam pipe arrangement is such that all steam is superheated, and a branch in the superheated steam line is provided to pass steam into the desuperheater inlet valve. The desuperheater outlet valve acts as the auxiliary stop valve, and all auxiliary steam, both for engine room and deck, can be taken from this source. The desuperheater is designed to reduce the steam temperature from 600 to 425 deg. F. and there is

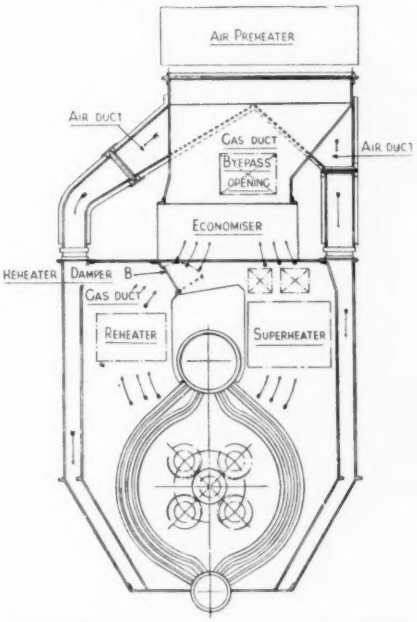


Fig. 3. Sectional view of Johnson boiler showing damper arrangement

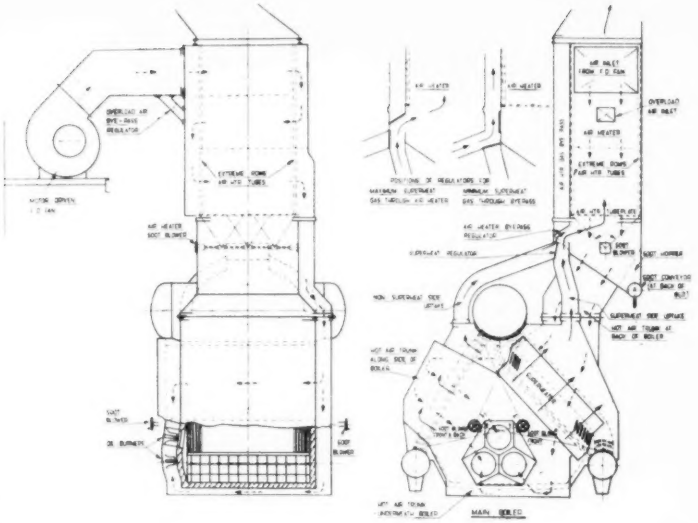


Fig. 4. Key plan showing air and gas paths

Air path - - - - - - - - - - - -

Gas path ————————

sufficient moisture in the steam at the latter temperature to operate auxiliaries without internal lubrication.

In order to keep the coil size to a minimum, high steam velocities are employed; and this results in a pressure drop of between 30 and 40 lb. With the aforementioned pipe arrangement there is no direct steam connection between any two boilers, and while it may be argued that at the junction of main steam lines all boilers are in interconnection, this will not produce balanced boiler pressures, as the superheater acts as a source of pressure drop. If the steam spaces of boilers are not interconnected boiler water levels are difficult to maintain, as pressures will always differ between boilers. To overcome this difficulty, therefore, it is necessary to connect the three boilers by an equalising pipe. This pipe can be connected either direct to the boiler shell or to the boiler side of the boiler stop valve. As has been mentioned above, the pressure drop through desuperheaters is high, and a live steam connection is therefore taken from the equalising pipe direct to the boiler feed pumps. This measure ensures that boiler feed pumps are always operating with boiler pressure steam, which would not be the case if they were operated on desuperheated steam.

It will be seen, therefore, that a desuperheater installation will give complete protection to the superheater under all conditions and will reduce the amount of internal lubrication required. Further, the fact that the steam is always superheated ensures that the highest possible boiler efficiency is maintained in port as well as at sea, as the exit gas temperature is always kept at a low level. The heat abstracted from the superheated steam is passed back into the boiler water, which in effect is equivalent to an increase in boiler heating surface, while it also improves circulation and, further, contributes to steam plant economy. Finally, the maintenance costs of superheater installations are at the same time reduced to a minimum.

Reverting to the expanding of smoketubes, it is always the practice of the author's company to recommend that the element ends should be positioned $3\frac{1}{2}$ in. to 4 in. back in the smoketube from the combustion chamber tubeplate, so that boiler tubes can be expanded whenever required without first removing superheater elements.

Watertube Boilers

Superheaters for watertube boilers are manufactured by the same method as smoketube superheaters, and they are furnished with the same type of joint, namely, the "Conceu" ball joint. The "MeLeSco" design for watertube boilers is always of the multi-limbed element, single-pass type. Outstanding examples in this respect are the installations incorporated in the Johnson boilers in the Canadian Pacific *Beaver* class vessels, which operate at the highest pressures and temperature employed at present in British ships.

It will be of interest to note that each of these ships is fitted with only one boiler with an evaporation equivalent to 9,000 s.h.p. Boiler pressure is 850 lb. per sq. in. and the steam is initially superheated to 850 deg. F. The H.P. turbine exhaust steam is returned to the reheater, which is also placed in the gas path in the boiler and is reheated to 850 deg. F. Fig. 3 shows the position of superheater and reheater in the boiler and, also, the dampers which control steam temperatures under fluctuating boiler steaming conditions. A further illustration, Fig. 4, shows the Yarrow controlled superheat boiler. Here it will be noted that the superheater is fitted to one side of the boiler only and that by operation of damper the gases can be directed either over the superheated or non superheated side as required.

Damper control of steam temperature is a simple operation and, by experience, predetermined positions of the damper can be found to suit the varying boiler operating conditions. In merchant vessels the boilers are steamed for long periods at constant loads, and steam temperature control, therefore, is only required for short periods, namely, when the vessel is entering or leaving port. It should be noted, however, that the damper will give protection to the superheater also when lighting up, as all gases can be by-passed during this period.

Another important feature of "MeLeSco" superheaters designed for watertube boilers is the adoption of the single-pass design, in which all steam enters the saturated header and simultaneously passes through all the elements. This feature distinguishes the "MeLeSco" design from a multi-pass superheater where all steam must traverse a number of passes before reaching the superheater outlet. In a single-pass superheater with multi-limbed elements the number of joints is reduced to a minimum—that is, two joints are required per element. In a multi-pass superheater the elements are in the shape of "U" loops and it is quite normal for high pressure, high temperature boilers to have superheater elements with five "U" loops in one row. These require ten expanded joints per row, so that in a design of this type the use of a "MeLeSco" superheater will reduce the number of joints by 80 per cent. Furthermore, multi-limbed elements can be removed without requiring the disturbance of others.

In controlled temperature boilers where it is desired to maintain elevated steam temperatures at low boiler power, the steam distribution through the single-pass superheater is always more uniform than through a multi-pass, especially as in "U" tube superheaters the "U" tubes in each row are all of different lengths. Also, the outer elements (which are the longest elements) always receive more heat than the inner elements (which are the shorter) at low evaporations. Therefore, the steam will naturally tend to flow along the shortest path, especially as the flow resistance through the outer tubes is greater because of the increased specific volume of the steam associated with the higher steam temperature produced in these limbs. The importance of securing ample steam circulation through all elements cannot be over-emphasised, and elements can only be protected from overheating and subsequent failure if this is safeguarded.

HATCHWAYS AND THEIR COVERINGS

A REVIEW OF PROGRESS IN SAFETY AND ECONOMY

By J. MACGREGOR,

Managing director of MacGregor & Co. (Naval Architects) Ltd.

THERE HAD been several vessels fitted with steel hatch covers just before the First World War. These were mainly of the Hogg Carr type and were hinged at either end and lifted by a specially heavy winch. To obtain sufficient rigidity the tops were transversely corrugated. They were difficult to handle owing to their excessive height, and also to make watertight, and were eventually given up. After a lapse of some years and on account of a serious loss of shipping due to hatch covers being stove in during the winters of 1923 and 1924, further attempts were made to produce a satisfactory steel cover, but at the same time the Board of Trade set about improvements in the wooden covers, and these had a good measure of success. The use of wire rope fastenings over the tarpaulins originated about this time; and another good step was the provision of a horizontal bulb angle, which prevented the sea washing the edges of the tarpaulins upwards.

The steel hatch cover, however, which was introduced originally as a safety measure, was also able to improve the time of handling, which was a capital point. As time went on the cost of upkeep proved to be only a fraction of what was required for the wood covers. The crews of the short sea traders soon began to show a marked preference for the steel covers when offering their services. This preference has since been more marked as many of the collier crews remember their wartime experiences, when the amount of air held by the steel covers proved sufficient to hold the vessel afloat for a much longer period than with wood covers, thus enabling the crew to get safely away, while in some cases the vessels themselves were also saved.

Longer Hatch Openings

The trend today is to have much longer hatch openings than was the case years ago and with this demand the old type of wood covering with web beams and tarpaulins becomes less and less suitable for the work. With the larger hatch openings the cargo is much more accessible for direct handling by the derricks or grabs, as the case may be, both as regards loading or discharging, so that the stevedoring is much less costly and the delays are shortened. This tendency is likely to increase rather than diminish, and given steel hatch covers of suitable design they should eventually supersede the older system, especially as very heavy web beams must be provided for wooden covers as the hatches grow larger.

The main difficulty with the steel cover in the past has usually been its unhandiness. In the case of a small hatch a simple hinged cover with suitable jointing and cleating would have sufficed. However we have to face the fact that hatches up to 60 ft. long and 36 ft. to 40 ft. broad are now being used and this, even if divided into two hinged parts, would involve two covers 30 ft. by 36 ft. which would have to be lifted. This would mean special heavy lifting gear, the winchman's view would be entirely blotted out, and the cost would be extravagant; so that some other solution had to be found.

A Possible Solution

Small covers resembling the wood covers, but in steel, provide a possible solution, but these retain the web beams and tarpaulins, which are time and money wasters. Rolling web beams may take away the difficulty experienced with the lifting in and out of the beams and avoid the slides for same, and further, the damage that frequently occurs to the ordinary vertical side coamings owing to the fact that the tarpaulin prevents any horizontal stiffener being fitted within 10 in. of the upper edge of coaming is eliminated. It requires a much longer hatch to house the beams at hatch end clear of the hatch opening, however, and militates against the direct handling over as much of the hold area as possible.

The other solution is to roll the cover horizontally clear of the opening. This can be done sideways with a fore-and-aft division at the centreline of the ship, especially in the case of broad vessels; although deck cargoes may be a hindrance to their opening unless specially catered for. Alternatively the rolling can be done endwise, but as the stowage length available is often restricted, the rolling sections must be made to pivot up to a vertical position once clear of the hatch opening. With this design of cover several types have been evolved. With one make each section rolls and lifts in succession. Another is a combination of hingeing-up and rolling at the end of the hatchway furthest from the winch, the hingeing sections being coupled together and lifted at the joint, but rolling towards their lifting point beforehand. Another combination is a series of coupled sections, the end section serving to push or tow the others into their respective positions. This is known as single pull. Lastly, the covers may roll open endwise horizontally from each end and overlap the opened cover of the adjacent hatch by varying the coaming height of each hatch. This arrangement, which is most suitable for ore carriers and such vessels with a series of hatches in succession, is very easily worked as there is no lifting, and a light hauling winch at each end of the hatch range can open or close the covers in a few seconds.

Covers in Tweendecks

So far only weather deck steel hatch covers have been in consideration, but there is a large field for the adoption of steel hatch covers in tweendecks. The solution in this case seems to be confined to end rolling with a number of transverse sections having the two end sections joined together at each end of the hatch and hinged to the deck, and lifting at their joining hinges. The remainder of the cover sections are made of rolling type. With this combination any section of the tweendeck or the hold can be made accessible simultaneously. This type of tweendeck cover stands up well to the dropping of heavy loads of cargo on it, which has proved a difficulty with small steel covers resting on web beams as the welding is liable to come adrift. These covers can be used in conjunction with bulb angle coamings in the case of open shelterdeck vessels, but otherwise a semi-flush hatch is provided which makes for easy loading and discharge and gives the maximum of space between the top of hatch cover and the underside of coaming of weather-deck hatches.

Any cover of the steel type can be insulated within the stiffening of the cover itself. This has proved to be a successful arrangement. In the case of weather decks all the second row of web beams to take the plug hatches is eliminated, and in all decks the need for plug hatches, which entail a lot of upkeep, disappears. The efficiency of this system is much superior to that of plug hatches. The great saving is the avoidance of time and labour wasted in lifting the plug hatches out and in, and in bringing a whole lot of gear such as web beams, plug hatches, etc., on the weather deck, and putting back in place, while the plugs are also liable to damage in being thus handled.

The other use for steel hatch covers is to give a flush surface where the deck may be required as a promenade or sports deck. In such cases the usual steel cover is sheathed with decking, and each section may be rolled fore and aft to its stowing place by means of four portable wheels per section which are detached once the cover is lowered. This avoids all slab hatch covers and tarpaulins, and is very

rapid in operation. This system has been adopted on several of the largest passenger liners recently.

Referring to details of steel hatch cover construction, the jointing used is rubber of a softer consistency than hard rubber, and this allows of a more definite compression than the latter, is more durable and can be made gastight. Greasy packing is not a good material for this job, owing to lack of resiliency and the fact that once the grease has melted out, the air or watertightness disappears. The rolling is accomplished by an eccentric bush in the wheels, which allows the cover to sit on its watertight seating at sea, but can be turned and pinned up so as to allow the wheel to function. This takes only a matter of seconds.

Hatch Disposition

There are many variations of hatch disposition possible, such as twin hatches, which allow the cargo hook to cover the hold area efficiently even without using the large single hatches, but these, while being lighter, are more complicated due to the central girders which are necessary. This type is useful, however, for carrying fixed or travelling central cranes between the two hatches. A further alternative is travelling cranes, which can traverse the hatch openings as well as run fore and aft over a range of hatches, as in Great Lakes vessels. These all find their best use with fore-and-aft rolling hatch covers which overlap each other when adjacent hatches are open, as the crane can travel right over the hatches whether open or shut.

The main point to consider today is time saving, although it is hardly realised by many shipowners running general cargo vessels what a large proportion of the present short working day in port is eaten up in hatch handling instead of cargo handling. This proportion must take account of all the stoppages which reduce the nominal working day to something much less; while the hatch handling time must remain a fixed quantity until better facilities are afforded. This fact has made it necessary to employ three vessels where two used to suffice in such places as Australia and New Zealand. A good case can be made out for using side ports, but this is generally done in tweendecks as an auxiliary to hatch loading.

The quickest loading possible is by spouts, as is done for coal, ore, grain, etc., and the quickest discharge is by grabs; but for finer cargoes neither is possible. In the case of general cargo the restriction on using light fork trucks in the ship, owing to their weight if battery-driven and the fumes if petrol-driven, leaves the hand truck as the only method of using side ports in tweendecks. This is bound to be slow, but can help the main hatch work. Attempts have been made to use overhead discharging beams on board the vessel itself, but the liability of damage at sea has given a setback to this scheme; so that in all likelihood we shall have to carry on with the deck hatch as at present, backed as far as possible in certain trades by side ports, using the ship's gear such as winches or cranes for discharge into barges away from the quay, and shore cranes to assist the ship's gear where available.

RECENT BRITISH MARINE PATENTS

A SURVEY OF THE ACTIVITIES OF DESIGNERS OF SHIPS AND EQUIPMENT

By D. W. RUDORFF

THIS REVIEW of British marine patents granted in recent years is an attempt to present a broad outline of the major problems occupying the minds of ships' designers, and in fact of all those concerned with the building of marine equipment of all kinds. It will be readily appreciated that a brief survey of this nature cannot possibly pretend to detailed completeness, neither as regards subject matter nor enumeration of all patents covering any specific invention; but it is hoped that this summing up will nevertheless serve to bring salient problems of today's marine developments into greater relief.

Ship Construction

In B.P. No. 561,343, G. A. Rotinoff envisages a cellular honeycomb structure of longitudinal cells which forms the outer part of the whole or a part of the ship. The honeycomb structure is formed by welding together plates of channel or trough shape. The cells and the central space are divided by plates or bulkheads, and both the cells and part of the central space carry oil cargo. The bottom of the vessel may be completed in dry dock, and the vessel then floated off and completed while floating. Filling of the tiers of cells is effected by pumps in the central space, which fill the tiers from the bottom upwards.

B.P. No. 564,390, issued to W. Beardmore & Co., Ltd., and W. E. Dickie, refers to the use of studs welded or screwed to the underside of steel decks; these studs to pass through boards of insulating, etc., material and through slots in strips of wood or other material covering the board junctions and to be fitted with nuts and washers.

B.P. No. 566,098, granted to A/B Gotaverken, proposes a bulkhead or similar structure which is liable to be subjected to unilateral pressure decreasing in one direction, as for instance, because of the decreasing static water pressure, towards the top. In this design, stiffeners are provided, the distance between which fans out in the direction of decreasing pressure, that is, towards the top of the bulkhead.

In B.P. No. 567,229, E. F. Moloney suggests building up the ship's hull from superposed strakes of units of "sectional plates"; each unit comprising the main plate proper with a stringer formed of a sectional plate welded to the main plate along one of its longitudinal edges, and a series of frames also formed of sectional plates and welded edgewise to the main plate. The main plates are welded together to form the hull.

B.P. No. 570,771, issued to Mechans, Ltd., and A. B. S. Young, covers the use of picoted clips turned by handles which secure ships' bulkhead or other watertight doors in the closed position. The handles and clip have a total rotation of 140 degrees, the locking position being 50 degrees inwards and downwards from the vertical.

B.P. No. 581,310, which was granted to Weaver Associates Corporation, refers to corrugated bulkheads and shows the intersection of two bulkheads with horizontal corrugations as having the edges of the intersecting plate profiled to fit fully the form of the intersected continuous plate. The interfitting edges are then welded.

B.P. No. 595,945, issued to C. F. Christensen, shows a ship with propelling machinery aft, which has the hull rigidity progressively increasing in the forward direction. This is achieved either by increasing the depth of the double bottom by the provision of longitudinal bulkheads or by addition of material to the ships' sides and decks.

According to B.P. No. 599,638, issued to E. L. Barford, a welded bulkhead comprises a vertical element placed between two horizontally-placed corrugated plates whose cross-section forms part of a smoothly running wave, as for instance a sine wave.

R. S. V. E. Guilloton, in B.P. No. 620,472, proposes the use of longitudinal beams to support the deck plates between longitudinal upwardly reinforced box girders and the walls of the ship and carried by transverse box girders on each transverse side of the hatchways and connected with the longitudinal box girders.

In B.P. No. 623,550, L. D. Smith describes a container ship having large hatches over the holds. He describes a sheer structure comprising hollow beams in the side walls of the vessel and extending over the greater part of this length so as to strengthen the structure of the vessel. These hollow beams form a continuous enclosed passageway along each side of the vessel.

B.P. No. 635,112, issued to D. Tom-Peterson, refers to transverse and longitudinal corrugated bulkheads and covers a design in which the corrugations of the two intersecting bulkheads are so arranged that the corrugations in the one of the two bulkheads are displaced in such a manner relatively to the corrugations of the other bulkhead that each vertical part of one bulkhead intersects a sloping part in the other bulkhead and *vice versa*. This arrangement facilitates the connection of the bulkheads by welding, etc.

B.P. No. 566,046, granted to W. P. Kellett, and being a patent of addition to B.P. No. 549,305, refers to a ship having rows of rollers arranged on the decks so that goods containers can be hauled along these roller ways for storage on the decks, as described in the parent patent. The rollers are mounted in supports below the deck surface and project through openings in the deck so as to enable the containers to rest on the rollers.

In B.P. No. 581,708, issued to J. D. Calvin, loading of a

ship's hold with other than bulk cargo is facilitated by the provision of two conveyors between the tweendecks and the hold so that trucks carrying the cargo can proceed from the quay through the cargo doors down to the hold and return by a separate conveyor.

According to B.P. No. 593,666, in the name of P. Thiel, a sectional ship comprises a complementary engine unit and cargo section, of which the engine unit contains propulsion and navigating equipment and crew's quarters. This engine unit has an indentation in one side of the hull to provide a recess for receiving and supporting the cargo section. The latter is in the form of at least one floatable cargo-carrying barge and fits snugly in the recess of the engine unit. The latter is equipped with ballast means for sinking it, so that the bottom of the recess has a draught greater than the loaded cargo section, permitting that section to be floated into the recess. On raising the engine unit, the cargo section is supported on the bottom of the recess. B.P. No. 574,609, granted to J. J. Bylo, describes a vessel equipped with one or more dismountable cargo-receiving holds or platforms supportable on the deck of the vessel. The hold is supported at its ends on the dock and the vessel is moved under the hold by lowering the receiving deck sufficiently by water ballast.

In B.P. No. 563,371, J. S. Thompson and W. G. Thompson show the frame of a ship's sidelight provided with a mild steel ring which can be attached by welding to the ship's plating. The ring may be made separately, split, assembled on the frame, and its ends then welded together; or the ring may be shrunk or screwed on to the frame.

B.P. No. 639,373, issued to John I. Thornycroft & Co., Ltd., and H. J. Watson, aims at providing a ship's funnel the design of which ensures that smoke and other products of combustion are carried away clear of decks and accommodation spaces throughout the ship. The patent described and illustrated in THE SHIPPING WORLD of October 18.

Multi-Hull Ships

B.P. No. 571,365, issued to A. H. G. Burgess, refers to a multi-hull ship having three hulls forming a continuous deck. The screws are located in two longitudinal tunnels formed by the hulls.

B.P. No. 586,640, granted to A. J. Abbey, describes a multi-hull ship comprising a single superstructure supported by a number of hulls, the hulls being mutually detachable; the latter may be used either individually or in combination with the remaining hull or hulls.

A number of designs of concrete ships were conceived during the last war, intended to improve designs made during the First World War. Among these patents the following may be mentioned: B.P. No. 560,346, issued to A. Holter, who describes a method of casting ships in reinforced concrete, while B.P. No. 560,369, granted to the same inventor, specifies a tubular hull which has special features. A ship's hull built up of a number of tubular units connected to bow and stern sections is claimed in B.P. No. 564,485, granted to V. Yourkevitch. The manufacture of reinforced concrete vessels is described by Sir E. O. Williams in his B.P. No. 579,964 and No. 581,682, and a reinforced concrete structure of special type is covered by B.P. No. 584,194, issued to R. A. Whitson.

B.P. No. 636,987, issued to P. H. de Groot, describes a fishing vessel equipped on the roof of its deckhouse with a tank to receive the catch, while the processing machinery is housed above or mainly above deck and preferably within the interior of the deckhouse.

Ship Salvage

For the raising of sunken ships F. G. Creed and Floating Structures, Ltd., in B.P. No. 568,612, propose a floating platform supported by bridgework connecting the upper ends of columnar buoyant members, which with their lower ends are secured in horizontal tubular floats. The platform is provided with lifting gear, but it may also be used for sinking piles or caissons, etc.

Saunders-Roe, Ltd., and A. Gouge, in B.P. No. 575,723, describe a flying boat base which comprises a dock on the shore of an alighting stretch of water, a breakwater located off shore from the dock, a cable extending between the breakwater and the dock and a winch for drawing in the cable to tow into dock the flying boat which has made fast to the cable.

B.P. No. 593,649, granted to J. Wertheimer, envisages a salvage vessel which comprises a pair of hulls connected by endless girders, each extending beneath each hull and bridging the space between the hulls with lifting means mounted on the hulls for lifting and supporting a derelict vessel between them.

The design of novel types of anchor is described in B.P. No. 570,950, of G. E. Dial, No. 574,326, issued to A. H. Bechelt, and No 575,837, granted to R. S. Danforth, while No. 579,815, issued to R. C. Graseby, describes an apparatus for delivering an anchor through the hull of the ship, the anchor being normally contained in a tube mounted over a hole in the hull, ingress of water being prevented by a gate valve. A mooring anchor or sinker of hollow pyramid form is specified in B.P. No. 594,287, in the name of W. Lethington. The subject matter of B.P. No. 608,526, granted to Hamilton's Lilyflex Surfaces, Ltd., and R. M. Hamilton, is indicated by the title "Improvements in or relating to mooring systems for chain ferries and ships." This invention envisages a chain and travelling float system comprising, in combination, a chain meshing with a driving sprocket, which may be moored about an anchorage so as to be capable of being used for securing vessels, while the travelling float is employed to facilitate the securing of mooring chains or hawsers from the vessel to the chain.

Collision Measures

Among collision measures protected by British patents, the invention covered by B.P. No. 563,977, granted to A. R. Neelands, A. R. Pithard, G. Wallace and Cementation Company, Ltd., may be mentioned. The device described for sealing an underwater hole in a ship's hull comprises a bag in mesh form, which is larger than the hole. This bag is inserted into the hole in such a way as to be partly inside and partly outside, and then expanded by material capable of setting under water. The bag may be made of metal, fibre, cloth or rubber. A spring-pressed sealing plate for sealing holes in ships and tanks is described in B.P. No. 565,656, granted to B. H. Wishaw. The combined use of inner and outer sealing plates and means for sealing the hole by their use is shown by B.P. No. 570,106, in the names of F. L. Goodacre and L. E. Turner. Stopping leakage by temporarily sealing a hole in a ship's hull by the application of concrete or cement is also described in B.P. No. 597,876, issued to R. S. Chipchase.

"Sea calming" is the title of B.P. No. 580,807, granted to L. R. B. Shackleton. According to the inventor, liquid fuel oil, hydrocarbons and like liquids, including creosote, are thickened by means of the reaction products of sulphur chloride and vegetable or fish oil, which may either be formed *in situ* or added as a previously formed powdered product. In an example 30 parts diesel oil, 5 parts rape seed oil and 1.25 parts sulphur chloride are stirred together and maintained at 65 deg. C. for 30 minutes. A soft rigid jelly forms in about one hour.

B.P. No. 581,771, issued to W. O. Alexander and Imperial Chemical Industries, Ltd., claims that corrosion and incrustation of ships' hulls and marine structures is prevented by forming or surfacing such structure with preformed sheets of a compound metal consisting of a layer of a ferrous alloy bonded on one or both sides with a layer of corrosion resistant metal or alloy, the latter being joined together by welding with an alloy of substantially similar composition so as to present a continuous corrosion-resistant surface. The corrosion resistant material may be a copper-nickel alloy, nickel-silver, stainless steel, aluminium, aluminium bronze, or aluminium brass.

Propulsion Plant

Numerous patents have been issued in recent years in connection with the arrangement of marine propulsion plants of various types. Thus, B.P. No. 561,432, issued to Sulzer Fréres, S.A., shows how dangerous resonance phenomena of torsional vibration can be avoided by positioning in a geared diesel installation the reduction gear nearer the propeller than was hitherto usual. The features of a multi-engine internal combustion engine drive, in which propeller shafts are driven through gearing and mechanical or electro-magnetic couplings by diesel engines, are described in B.P. No. 563,115, issued to English Electric Co., Ltd., and R. J. Welsh. A propulsion plant in which a number of internal combustion engines are connected *via* electric slip couplings to the propeller shaft is shown in B.P. No. 566,966, granted to A/B Gotaverken and J. Olsson. In B.P. No. 571,553, M. Pettersen shows how in a multi-cylinder marine engine which has a row of at least five upright cylinders arranged across the ship, each cylinder has an individual transverse crankshaft which is arranged lengthwise in the ship. The crankshafts have supplementary cranks connected by coupling rods and the propeller shaft drive may be taken from the central crankshaft or, in the case of a twin-screw vessel, from lateral crankshafts.

A multi-cylinder opposed piston engine of interesting design is described in B.P. No. 602,662, issued to H. Penwarden and Sir J. Kingcome. In this engine the cylinder axes form isosceles triangles, with the angle between the equal sides being greater than 60 deg. and not more than 90 deg.

A hydraulic coupling arrangement, providing for ahead and astern working, each including a hydraulic coupling of the kinetic type, is covered by B.P. No. 572,773, granted to H. Sinclair. In B.P. No. 577,438, T. Hindmarch describes the features of an arrangement of reversing gearing for two or more prime movers for driving the propeller shaft of a ship; the arrangement comprises separate forward and reverse gear units for each prime mover. A master control valve for controlling the pressure fluid operated clutches of the gear units is described in B.P. No. 582,342, granted to the same inventor.

In B.P. No. 582,212, G. Golliez describes how a reversible internal combustion engine plant with supercharger and an exhaust gas turbine is operated in such a manner that the supercharging pressure is higher when the engine runs in reverse than when it runs forward. The torque thus produced counteracts the action of the slipstream on the propeller when the ship is braked by reversing the engines. The normal supercharging pressure is reached at a lower reverse speed, and may even be provided when the engine is stationary.

An internal combustion engine power propulsion plant incorporating a number of double-shafted opposed piston type engines, with the engine shaft pinions engaging the common gear wheel at points distributed over its periphery is described in B.P. No. 583,313, granted to A. B Gotaverken. A geared turbine drive incorporating hydraulic couplings for alternative ahead and astern running is featured in B.P. No. 585,148, issued to K. Baumann and the Metropolitan-Vickers Electrical Co., Ltd. In the design described, ahead running without slip is provided for by a friction clutch.

Features of the Harbormaster type outboard units are described in B.P. Nos. 568,341, 598,314, and 598,598, issued to Murray and Tregurtha. The high pressure hydraulic propulsion plant comprising a number of diesel engines driving high pressure piston type pumps connected to one or more, preferably reversible, high pressure piston type propulsion motors as developed by B. F. Baxendale, M. G. R. Petty and G. F. Jones, is described in B.P. No. 598,654.

A fuel supply installation for the purpose of supplying heavy liquid fuel to diesel engines is outlined and described to detail in B.P. No. 616,908, issued to Shell Refining and Marketing Co., Ltd., and J. Lamb. An apparatus for determining the amount of water contained in fuel oil is the subject of B.P. No. 609,170, issued to Sir John Kingcome, K.C.B., W. Killner and J. J. Gray.

Gas Turbine Plant

It goes without saying that the advent of the gas turbine has greatly stimulated inventive effort and only a few of the large number of patents dealing with the employment of gas turbines for marine propulsion purposes can be referred to here. Thus, B.P. No. 599,775, issued to the British Thomson Houston Co., Ltd., and B.E.G. Forslag relates particularly to gas turbine plants for electric ship propulsion using alternating current. According to the diagram (Fig. 1) the gas turbine generating plant includes an alternator, an exciter for the alternator, a gas turbine rotor which drives both the exciter and the compressor, and a further gas turbine which drives the alternator. It will be noted that this plant design includes a heat exchanger (6) which serves to abstract waste heat from the exhaust gases before they enter the funnel (15).

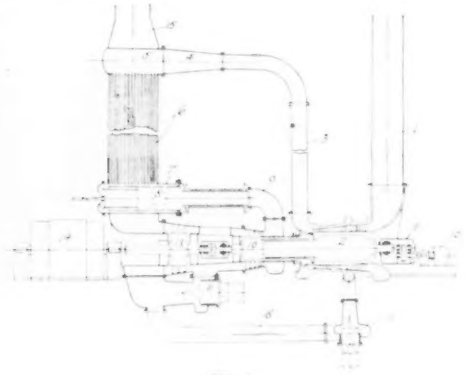


Fig. 1.

According to B.P. No. 612,645, issued to R. W. Bailey and the Metropolitan-Vickers Electrical Co., Ltd., a ship's propulsion plant can be built to include a propeller, driven by a gas turbine, located on each side of the ship and between them one or more propellers driven by steam, or another suitable working substance. The plant would be so arranged that the exhaust gases from the gas turbine plant are utilised to evaporate or superheat the other working fluid, as for instance water.

P. Du Cane and Vosper, Ltd., in B.P. No. 622,414, obtained protection for an arrangement for the silencing and disposing of the exhaust gases from internal combustion engines, especially gas turbines.

B.P. No. 612,817, granted to the Elliott Company, describes the features of the well-known marine gas turbine plant pioneered by that firm in the U.S.A. Important information concerning the use of hot air turbines for marine propulsion as proposed by J. Johnson is contained in B.P. No. 624,948. The specification of B.P. No. 631,863, granted to John Brown & Co., Ltd., and T. A. Crowe, relates to open-circuit gas turbine installations which involve two or more driving shafts from which the outputs may be either constant or variable, both as regards speed and power. The importance of proper air supply to the combustion chamber of a gas turbine and a proposed method for achieving this is referred to in B.P. No. 635,450, granted to T. L. Gardner and the Metropolitan Vickers Electrical Co., Ltd.

Boilers and Burners

Details of an improved oil burner for marine boilers are given in B.P. No. 591,811, granted to Sir Frederick Richard Gordon Turner, Engineer Vice-Admiral, and C. J. Gray, of the Admiralty Fuel Experimental Station, Haslar. A method for the electrolytic descaling of shell type marine boilers is outlined in B.P. No. 600,738, issued to F. G. Hegus.

A marine watertube boiler design of the divided furnace type in which reheating between turbine stages is carried out, is referred to in B.P. No. 609,674, issued to Babcock & Wilcox, Ltd., and R. E. Zoller. Details of superheated steam temperature control by means of a surface type cooler are disclosed in B.P. No. 617,463, granted to Babcock & Wilcox, Ltd., and C. H. Sparks. An improved sea water evaporator plant, is described in B.P. No. 624,967, issued to Werkspoor N.V., of Amsterdam.

A watertube boiler of the double flow type with provision for steam temperature control by gas damper manipulation is outlined in B.P. No. 619,716, granted to the Fairfield Shipbuilding & Engineering Co., Ltd. B.P. No. 632,011, issued to The Superheater Co., Ltd., and L. C. Southcott, relates to superheaters for twin-furnace watertube boilers in which superheating of the steam is carried out in a superheater furnace. According to the invention, the superheater furnace has in its lower part, in which it is fired, a radiant superheater section and in its upper part a convection superheater section. The latter consists of longitudinal element loops. A moisture separator for separating and removing moisture from steam which may be incorporated in a pipe carrying saturated steam is described in B.P. No. 633,607, issued to The Superheater Co., Ltd.

Marine Jet Propulsion

The advent and subsequent remarkable advances made in jet propulsion as applied to aircraft have produced a certain amount of inventive activity in the field of marine craft also, and a number of patents issued in recent years describe plants of this type. It will be of interest to note in this connection that in one or two recent authoritative papers on the aspects of marine jet propulsion encouraging information on the propulsive efficiency of such plants is given.

G. Stafford and F. Reed, in B.P. No. 564,896, envisage an explosion pump, in which the water enters a water chamber through a wide automatic valve, and is then driven out through a narrow outlet by explosions caused in an explosion chamber communicating with the water chamber, the air, fuel and gas valves of the plant being electromagnetically controlled. In B.P. No. 565,157, issued to Vosper, Ltd., and P. Taylor, it is proposed to lead the exhaust gases from the internal combustion engine of a motor boat into a hollow rudder. The aim of this proposal of course is to provide effective silencing and also to assist in the propulsion and steering of the boat. Jet propulsion for submarines is proposed in B.P. 567,082, obtained by G. R. Mienta, the working gas "being used over and over again." According to A. E. Foulger in B.P. No. 567,870, pressure water is discharged through two submerged outlets in the hull, the outlets being rotatable for steering purposes. The pressure water is supplied by a single centrifugal pump.

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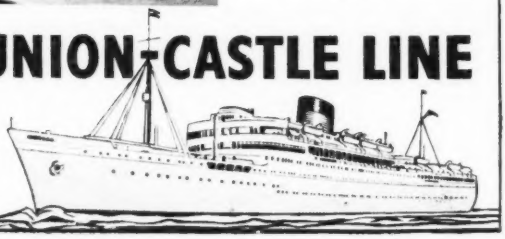


with the air or gas discharge is mentioned in B.P. No. 572,523, granted to P. H. Wild. The jet propulsion apparatus envisaged by F. Hamilton-Adams in B.P. No. 578,503 has a chamber in which fuel is burned so that water is evaporated in another chamber surrounding the former. The combustion products and the steam are mixed in a common chamber and pass through a turbine which drives the fuel and air pumps prior to passing to valve-controlled jet nozzles. A. Brown and H. Vickers, in B.P. No. 587,079, describe the design and working cycle of a jet apparatus with combustion chamber which serves to expel a water jet. Water jet propulsion is also the substance of B.P. No. 591,089, obtained by W. J. H. Challis and Isleworth Shipbuilders, Ltd.

Steering and Rudders

A rudder, preferably of the balanced type, with a tube serving as rudder stock, is described in detail in B.P. No. 560,914, issued to J. Livingston. Further particulars of the proposed design are given in B.P. No. 560,922, issued to the same inventor. In B.P. No. 565,041, R. L. Aitken explains that in a ship's steering system with a balanced rudder, especially of the hand-operated type, instability of the rudder at certain angular positions will be prevented by provision of a proposed brake mechanism.

In B.P. No. 565,414, P. F. Damslet and Norwegian Shipping and Trade Mission describe the fitting of one or more open-ended box-like fins to each side of the rudder plate. The design of a change-over valve for a hydraulic steering gear is covered by B.P. No. 565,515, issued to C. Hyland. Proposals regarding the manufacture of rudder frames are made in B.P. No. 565,615 and No. 568,465, both issued to the Wolsingham Steel Co., Ltd., and T. Liddle. J. L. Dalrymple, in his B.P. No. 588,388, discloses design features of a steering gear which is hand operated at the normal steering position but can be controlled from remote positions electrically by changing over to electric working. A considerable amount of detail appertaining to an automatic steering gear system steered by a magnetic compass is given in B.P. No. 592,405, issued to General Motors Corporation.

Propulsion by means of one or more propellers set forward of the stern within an open-bottom trough formed in the bottom of the after part of the hull with its rear end below the rudder post is envisaged in B.P. No. 562,451, granted to W. R. Andrews, a further feature of this invention being the provision of external channels in each side of the after part of the hull for the purpose of directing water to the rudder. According to B.P. No. 564,613, obtained by A. Rietzke, straight ahead propulsion of a twin screw propelled vessel, should either propeller become ineffective, is ensured by placing the propeller axes on lines parallel to lines extending from the centre of frictional resistance on the hull, to points offset from the centre of the rudder blade at a distance in inches equal to the length of the hull divided by the greatest width in feet at the water level. The method of determining the centre of frictional resistance is described.

B.P. No. 578,785, issued to T. C. Tobin and Sir F. E. Rebbeck describes a novel propeller shaft bracket. The design of a stern-tube gland is disclosed in B.P. No. 597,002, granted to E. Bugatti under convention rights. A propeller guard preventing fouling of the propeller by a rope is covered by B.P. No. 636,067 issued to D. L. McLean.

Anti-Rolling Devices

Among anti-rolling devices proposed in patent specifications, B.P. No. 564,978 granted to H. Hutton-Penman describes a device comprising a number of flat steel plates attached to the sides of the hull slightly above the waterline with their fore ends slightly higher than their after ends. B.P. No. 573,954 and 588,965 issued to W. Denny & Bros., Ltd., J. F. Allan and Brown Bros. & Co., Ltd., refers to a roll stabiliser comprising fins which are projectable laterally from the sides of the hull and B.P. No. 578,909, granted to Brown Bros. & Co., Ltd., W. Wallace and W. Denny & Bros., Ltd., describes an electric control device contrived to anticipate change in the direction of rolling motion of ships, etc., equipped with anti-rolling apparatus. (The use of stabilising fins of a type developed by the aforementioned companies and individuals has gained wide publicity by the installation in the *Chusan*. Reference to these three patents enumerated above should not, of course, be considered to give the full picture both as regards actual installation and patent protection.)

J. Bell and C. S. Wright, in their B.P. No. 580,982, propose to stabilise a ship by providing a number of small fins or stabilisers mounted on separate shafts arranged at right angles to the longitudinal centre line of the ship, the fins being located in openings along the length of the bilge keel each side of the ship. By oscillation of the shafts by control, from inside the ship, the fins are tilted to impel water through the openings so as to produce a stabilising force.

A. N. G. Andrews in B.P. No. 564,869 describes a telescoping hatch cover comprising a number of slideable sections of progressively reduced size and indicates means for maintaining weather tightness. Hatch covers with laminated wood components with special design features are referred to in B.P. No. 565,171 granted to G. Kahr. Hatch cover features of various natures are described in B.P. No. 580,758, issued to L. E. Metcalfe and No. 593,848 granted to Waterman Steamship Corporation under convention rights.

The considerable number of patents granted on the design and operational features of lifeboats and davits proves the importance attaching to this matter. Lifeboat designs are given in B.P. Nos. 560,016 and 566,925 granted to I. R. Fleming, F. E. Fleming and R. P. Moffat, in No. 561,346 issued to H. M. Crankshaw, and No. 564,147 obtained by G. B. Bailey and S. J. Wragge, who describe a hand-operated propelling gear.

SHIPS AND SHARES

(*Continued from page 46*)

that have come of Korea and the rearming of the nations. A position has now been reached where shortages of sea-carrying capacity are apparent. On the other hand, accounts of the shipping companies issued in 1950 have revealed the adverse effect on profits of higher fuel, loading, supply and other costs and of increased depreciation charges. Shipping shares were understandably a rather friendless market throughout the greater part of 1950. But towards the close of that year investors were attracted to the market by the strengthening of the freight rate structure, and share values began to rise.

The course of price movements in shipbuilding, marine engineering and shipping shares is depicted in the following tables:—

SHIPPING SHARE PRICE TRENDS
Price Range and Yields, 1950

	High	Low	Approx. Price End-1950	Yield per cent
				£ s. d.
Aviation and Shipping	2 8	1 4½	2 7½	— —
Britain Steamship	27 -	15 3	27 -	5 16 0
British Oil	13 7½	11 -	12 3	7 17 0
Cairn	15 6	9 -	14 -	5 3 6
Clan	£7½	£4½	£7½	3 3 3
Coast	14 10½	12 0½	14 -	6 18 0
Cunard	37 1½	30 8½	35 6	5 11 3
Dene	21 3	14 6	20 6	—
Donaldson	42 3	39 -	—	—
Elder Dempster	52 3	38 -	52 3	4 15 3
Furness, Withy	32 5½	22 7½	31 10½	4 19 0
Graig	18 6	14 7½	—	—
Houlder Line	£5½	100 9	—	—
Indo-China (Defd.)	60 3	40 6	56 -	7 0 6
John I. Jacobs	63 -	42 6	—	—
Manchester Liners	37 6	31 -	—	—
P. & O.	53 9	40 9	53 9	4 9 0
Reardon Smith	40 -	24 7½	40 -	3 2 0
Ropner	40 3	29 10½	—	—
Royal Mail	28 9	21 9	27 -	5 9 0
Silver Line	14 -	7 -	13 4½	—
Stanhope	18 6	10 -	18 6	6 11 9
Thomasson	6 9½	4 6	—	—
Union-Castle	36 -	27 3	36 -	4 7 6
United British	18	8 2½	18 -	5 9 9
Viking Tanker	48 6	45 -	—	—

SHIPBUILDING SHARE PRICE TRENDS
Price Range and Yields, 1950

	High	Low	Approx. Price End-1950	Yield per cent
				£ s. d.
John Brown	36 3	22 9	35 3	6 7 3
Cammell Laird	10 9	6 -	10 9	4 9 6
Clarke Chapman	58 9	43 6	57 6	4 5 9
Doxford	83 1½	42 6	80 3	4 11 0
Harland & Wolff	20 10½	12 4½	20 6	6 18 0
Hawthorn Leslie	23 9	12 10½	22 -	5 6 0
Richardsons Westgarth	10 6	6 0½	10 6	5 12 9
Swan Hunter	58 3	34 9	56 -	—
Thornycroft	96 3	70 7½	£4 ⅛	5 9 0
Vickers	35 3	24 10½	35 3	3 11 6

It will be noticed that, in the instance of both shipbuilding and shipping equities, prices have closed at or near the highest levels of the year. But, as shipbuilding ordinaries had a major rise in 1950 and shipping equities began to advance only towards the close of the year, the latter are the more likely to provide capital appreciation in 1951. Moreover it must be borne in mind that shipbuilding profits may suffer this year from completions of fixed price contracts which have not allowed for increase of costs.

A LIGHT ALLOY SUPERSTRUCTURE

THE APPLICATION OF ALUMINIUM TO HIGH SPEED CROSS CHANNEL MOTORSHIPS

By Dr. E. C. B. CORLETT

SHIPS OPERATING at speed length ratios of unity and above are demonstrably sensitive to savings in structure weight. Machinery costs are high and savings in displacement, possibly accompanied by a reduction in beam draught ratio, can produce economies both in capital and running costs which allow the use of a relatively expensive material, such as shipbuilding aluminium, and yet improve the earning capacity of the vessel. Cross-Channel ships fall into this category and the purpose of the work described herein was to examine the effect of constructing the superstructure of such a ship either partially or completely of aluminium alloys. Improvements were sought both in the initial stability and the powering, and it must be pointed out that these aims do not necessarily have any bearing upon the characteristics of the basis ship.

Five alternative schemes were examined covering a varying extent of aluminium structure, and before discussing these, it would be as well to detail the procedure and the characteristics of the chosen vessel. The basis ship was a motorship of the following dimensions:—

Length overall	371 ft.
Length between perpendiculars	361 ft.
Breadth moulded	46 ft.
Block coefficient on L.W.L. (Cb)	0.518
Midship section coefficient on L.W.L. (Cm)	0.91
Prismatic coefficient on L.W.L. (Cp)	0.57
Normal draught	11 ft. 11 in.
Normal displacement	2,755 tons
Assumed normal load G.M. (no free surface)	3 ft.

Twin 12-cylinder diesel engines gave a maximum of 17,000 b.h.p. Structural details of this ship were available and the steel superstructure was redesigned in marine aluminium alloys conforming to Lloyd's Register requirements for the materials. Direct calculation was used throughout, based on existing standard practice for aluminium alloy superstructures and the following give the basic design criteria adhered to:—

1. *Strength.*—The strengths of all aluminium members were made equal to those of the corresponding steel members, unless the use of the light metal modified the loading conditions. This led to $\frac{I}{y}$ aluminium being $\frac{29}{17}$ $\frac{I}{y}$ steel.

This is based upon Lloyd's Register required properties for shipbuilding material, i.e., a minimum ultimate stress of 17 tons per sq. in. for marine light alloys and 26 tons per sq. in. minimum ultimate stress for shipbuilding steel. In order to have a margin in hand, the aluminium scantlings were increased by using the value of 29 tons per sq. in. for the steel as opposed to the minimum of 26 tons per sq. in., while retaining the minimum value for the aluminium. In point of fact, this is harsh, as the latest developments in welding techniques for aluminium plate make it very probable that the light metal will shortly be on an equal footing with mild steel in both the economies and practicability of welding processes.

2. *Deflection.*—Normally, in light alloy deckhouse and minor bulkhead design, the deflection of the aluminium structure is allowed to increase beyond that for steel by 50 per cent under the same unit load. This procedure has proved satisfactory in service and leads to the requirement: $I_{\text{aluminium}}$ being $2 \times I_{\text{steel}}$. Criteria 1 and 2 are compatible, i.e., an optimum design to one will agree closely with the other in normal ships' structures.

3. *Material:*—(*a*) *Plate.*—The standard plate used by the British Aluminium Co., Ltd., for marine work was envisaged. This type of plate, now becoming standard practice, is a hot rolled alloy conforming to Lloyd's Register required properties and containing about 4 per cent magnesium. It is highly suitable, as it is possible to supply plates up to 30 ft. by 6 ft., or even longer. It is an optimum alloy for corrosion resistance under marine conditions and is both cheaper and more easily worked than are the higher magnesium alloys. The minimum mechanical properties are those given by Lloyd's Register and repeated below:—

Material	0.1% Proof Stress	Ultimate Strength	Percentage Elongation
BA.27 to Lloyd's	8 tons sq. in.	17 tons sq. in.	10% on 8 in. gauge length.

This material appears from test to be one of those most suitable for welding by the new continuously fed, inert gas shielded electrode processes, such as the "Aircomatic" process, and no difficulty is anticipated in obtaining full plate properties in the welds.

(*b*) *Bars.*—The standard material for sections recommended by the British Aluminium Co., Ltd., was envisaged, i.e., BA.25 W or WP, the former condition being used only when the material has to be severely formed.

Scope of Investigation

Several possible alternatives were considered. These were as follows:—

Scheme 1.—The entire superstructure above the level of C deck constructed in aluminium alloy. (C deck is the effective top flange of the hull girder and is the weather deck).

Scheme 1A.—Identical with Scheme 1, but with the modification that all ventilation trunking in the ship and the minor bulkheads on D deck were taken as being constructed in aluminium.

Scheme 2.—In this scheme, the light alloy was confined to B deck, and the material above. As before, masts, funnels, booms, davits and all houses down to B deck were taken to be in light alloy.

Scheme 2A.—This scheme bore the same relation to Scheme 2 as did Scheme 1A to Scheme 1.

Scheme 3.—In Scheme 3, it was decided to investigate the effect of constructing B deck in aluminium as part of the hull girder. To do this, the deck was plated over its whole area and the side plate made heavy enough to transmit the stresses up to B deck. Suitable end connections were presupposed.

These alternatives can now be dealt with individually. Scheme 1 is shown in Fig. 1, and it was intended that the aluminium structure should accept as little of the external loading as possible. It is known that some trouble has been met with in this type of ship, due to local stress concentrations at window corners, etc., in the superstructure, and the low Young's modulus of aluminium materially assists in overcoming this disadvantage when compared with the steel structure. The funnel, boats, davits and masts, together with rail stanchions, were all taken as being in light alloys. This reflects established contemporary practice, and in no case has a problematical development, such as the use of aluminium in deck machinery or piping, been considered. Turning now to Fig. 1, it will be seen that approximately 96 tons of aluminium has replaced 228 tons of steelwork. The centre of gravity of the aluminium is at 37.5 ft. above the keel, and the total centre of gravity of the vessel has been lowered some 1.20 ft. This, coupled with the hydrostatic effect of the draught reduction, increased the metacentric height by 1.40 ft.

Whether this increase in G.M. is useful or not, will depend upon the specific case considered. It was included here to show the order of the effect obtained, but it might be desirable to limit the beam-draught ratio accordingly. Further redesign was made in which the G.M. gain was reduced to 0.2 ft. The beam was reduced by 2 ft., the beam-draught ratio being reduced from 4.35 to 4.15. The advantages now lay entirely in the power saving and the undoubted increase in sea kindliness. It was estimated that with the reduced beam this power saving would amount to 10 per cent, as against 7.1 per cent with the original beam.

In Scheme 1A, by constructing the minor bulkheads on D deck in aluminium, a further saving in weight of some 30 tons was effected, and Fig. 2 summarises the results.

Scheme 2 is similar to several actual installations. The light alloy was confined to B deck and the material above, the approximate weight of aluminium involved being 72 tons and this replaced some 172 tons of steelwork. The centre of gravity of the loaded ship was lowered some 0.85 ft., the total increase in metacentric height being 1.11 ft. The power saving was 5.1 per cent, but if the increase in metacentric height was nullified by reducing the beam, this might be expected to rise to 8 per cent.

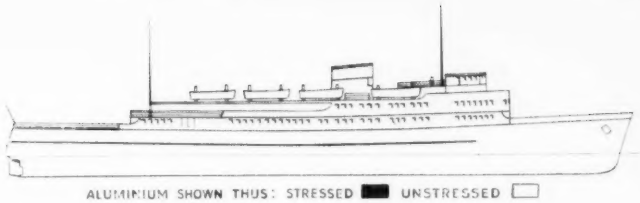
In Scheme 2A, again, there is little to comment upon in this scheme beyond the fact that putting in an extra 30 tons of aluminium, in the form of ventilation trunking and minor bulkheads, saved some 40 tons of steel weight.

In Scheme 3, as mentioned earlier, the effect of carrying the strength a deck higher than in the steel ship was investigated.

The design was carried out using the normal compound beam theory, which has been verified experimentally as being as accurate as the normal simple beam theory in a homogeneous ship. The $\frac{I}{y}$ of the midships section clear of machinery was calculated and bending moment constants were used, derived from available data. These were:—

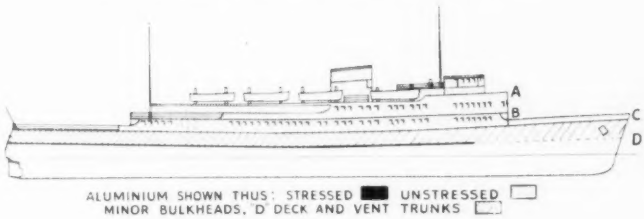
SCHEME No. 1

Approx. wt. of aluminium	96 tons
KG	37.5 ft.
Weight saved	132 tons
KG	38.1 ft.
CG lowered	1.02 ft.
Metacentric height increased by	1.40 ft.
Power saving :	
Original beam	7.1%
Reduced beam	10.0%
(GM gain reduced to 0.2 ft.)	



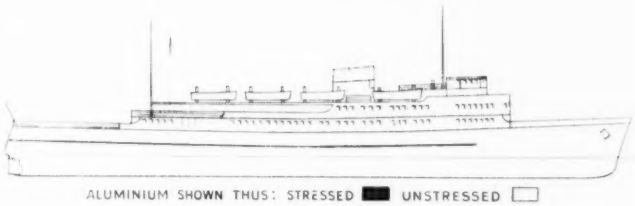
SCHEME NO. 1A

Approx. wt. of aluminium	130 tons
KG	33.5 ft.
Weight saved	170 tons
KG	34.6 ft.
CG lowered	1.12 ft.
Metacentric height increased by	1.59 ft.
Power saving	
Original beam	8.9%
Reduced beam	—



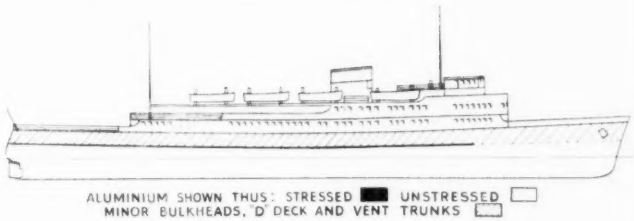
SCHEME NO. 2

Approx. wt. of aluminium	72.3 tons
KG	38.5 ft.
Weight saved	100 tons
KG	40.9 ft.
CG lowered	0.85 ft.
Metacentric height increased by	1.11 ft.
Power saving	
Original beam	5.1%
Reduced beam	—



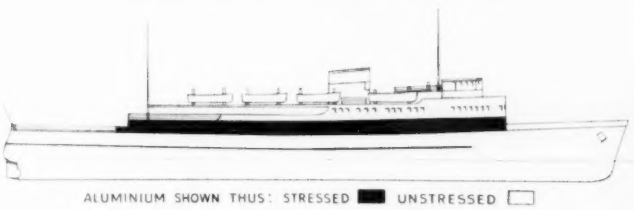
SCHEME NO. 2A

Approx. wt. of aluminium	105 tons
KG	34.5 ft.
Weight saved	139 tons
KG	35.6 ft.
CG lowered	0.92 ft.
Metacentric height increased by	1.32 ft.
Power saving	
Original beam	7.1%
Reduced beam	—



SCHEME NO. 3

Approx. wt. of Aluminium	105 tons
KG	37 ft.
Weight saved	156 tons
KG	35 ft.
CG lowered	1.02 ft.
Metacentric height increased by	1.47 ft.
Power saving	
Original beam	8.2%
Reduced beam	11.0%



$$\text{Sagging, bending moment} = \frac{\text{I.}}{44.4} \text{ ft. tons.}$$

$$\text{Hogging, bending moment} = \frac{\text{I.}}{22.3} \text{ ft. tons.}$$

Bearing in mind the formula for acceptable maximum tensile stress, $p = 5(L/1000 + 1)$ for steel, and amending this conservatively to, $p = \frac{\text{U.T.S. of aluminium}}{\text{U.T.S. of steel}} 5(L/1000 + 1)$, i.e., $p = 2.93\ (L/1000 + 1)$ for aluminium, the resulting stresses were well below those allowable as maxima and in every case below those in the original steel hull. By incorporating 8 tons of aluminium in addition to that already installed in Scheme 1, a further 25 tons of displacement were saved. Scantling changes and section properties were as follows:—

	Original (Scheme 1)	Redesign (Scheme 3)
B deck	0.236 in. aluminium (where plated)	0.30 in. aluminium (completely plated)
Side plate	0.30 in. aluminium	0.30 in. aluminium
C deck	0.30 in. (mild steel)	0.20 in. (mild steel)
D deck	0.236 in. (mild steel)	0.156 in. (mild steel)
Bottom	0.43 in. (mild steel)	0.43 in. (mild steel)

In the original ship the structural section clear of the machinery spaces gave the following sectional properties:—

Neutral axis	12.14 ft. above U.S.K.
I (about N.A.)	83,640 in.^{2} ft.^{2}
I y C deck	6,590 in.^{2} ft.
I y Bottom	6,880 in.^{2} ft.

For the redesign the following sectional properties were found:—

Neutral axis	12.85 ft. above U.S.K.
I about N.A.	103,300 in.^{2} ft.^{2}
I y B deck	5,110 in.^{2} ft.
I y C deck	8,500 in.^{2} ft.
I y Bottom	8,100 in.^{2} ft.

The power saving with the original beam, resulting from modifying Scheme 1 in this way, was increased to a total of 8.2 per cent, and if the beam were reduced to nullify the gain in metacentric height, this saving in power would be increased to 11 per cent. It should be noted, however, that in all these schemes no account has been taken of the reduction in machinery weight accompanying power reductions, and in every case the figures for weight saving, etc., are likely to be below the total obtainable. For example, in Scheme 3 it is probable that the saving in machinery weight would not be less than 50 tons, and this would increase the power saving in the reduced beam ship to the region of 15-16 per cent.

Procedure Adopted in Calculations

All the power calculations were comparative and were made using Taylor's Standard Series. The results may thus be relied upon as accurate comparisons with the original ship. The savings quoted are at a V/√L of 1.30, i.e., 24.75 knots. The weight calculations were done by detailed analysis of the structures. The absolute results should be quite accurate and as the original steel and the replacement aluminium superstructure weights were calculated concurrently, the comparison of weights and centres should afford close approximations. To afford a detailed comparison, a list of scantlings of the steel and aluminium superstructures for Scheme 1 is given in the accompanying table.

The whole purpose of using any new material or introducing any modification in design is to improve the efficiency of the ship concerned, and in a merchant ship this is usually to be interpreted as improving the earning capacity of the vessel. The following analysis is an attempt to obtain an overall idea of the effect of using aluminium in this ship, but is necessarily somewhat approximate. Due to devaluation followed by the Canadian revaluation, the price of aluminium has risen fairly recently and in view of the somewhat fluid position an arbitrary value has been used. This value, however, is representative at the present time. The basic prices used were:—

Aluminium alloy plate and bars	£220 per ton.
Steel plate and bars	£21 per ton.
High-speed diesel machinery	£19 per b.h.p. (Note.—This figure was obtained from suitable engine builders).

One case only will be considered in detail, viz., Scheme 1, but Scheme 3 will be dealt with in outline.

Scheme 1.—If the saving in the e.h.p. should be sufficient to allow a reduction in the number of cylinders per engine, the first possible reduction would be from 12 to 11 cylinders per engine, making a power reduction of 8.33 per cent. This reduction in the number of cylinders per engine might conceivably affect the balance of the engines, but this point has been checked with the relevant engine builders, and on the basis of data supplied it was not considered that the balance of the 11-cyl. engine should be appreciably worse than that of the 12-cyl. engine. The mass balance can be made entirely effective while the external moments, although present in both rotatory, primary and secondary out-of-balance modes, are comparatively small. They compared, for instance, with a 10-cyl. engine as follows:—

	Rotatory	*Primary*	*Secondary*
10-cyl. external moments	0	0	0.898
11-cyl. external moments	0.153	0.153	0.382

In a 6-cyl. engine the external moments are 0, 0 and 3.46. The internal moments on 11-cyl. and 10-cyl. engines are similar in magnitude. As 10-cyl. arrangements have been used in high-speed vessels, there appears to be little reason why 11-cyl. machinery should not be used. Thus, assuming that Scheme 1 would allow the removal of one cylinder per engine, the following applied:—

	£
Cost of light alloy, 96 tons @ £220	21,000
Cost of steel replaced, 228 tons @ £21	4,800
Net extra cost of structural material	16,200

A *pro rata* reduction in machinery costs based on cylinder construction would give a saving of 1/12th by 16,000 b.h.p. by £10 = £25,300. This, however, is not a true indication of the saving, as there must be a certain amount of machinery common to both original and modified installations, and the figure quoted by engine builders was approximately a 20 per cent reduction on the *pro rata* saving of machinery costs. This gives a saving in the cost of machinery of £20,200. Thus, offsetting the increased material cost against the reduction in machinery costs, a saving in the first cost of the ship results, this being of the order of £4,000.

Running Costs.—The following assumptions were made: Fuel consumption (main engines) = 0.35 lb. per b.h.p. hour or a total of 5,600 lb. per hour, and assuming an 8.33 per cent fuel saving, this represents 468 lb. per hour.

Assuming a voyage to be 60 miles at 24 knots, the saving per trip is 1,170 lb.

Assuming two trips per day, a daily saving = 2,340 lb. (say 1 ton).

If the ship is in service 300 days per annum, the yearly saving = 300 tons.

The annual fuel saving at 170s. per ton is, thus, £2,550.

Summary of Results

1. First cost was £4,000 less in a ship with aluminium superstructure, but this assumed the fabrication costs per unit of structure to be the same for aluminium as steel.
2. Capital charges were approximately £200 per annum less.
3. Annual fuel charges were approximately £2,500 less.
4. The maintenance saving on the superstructure is indeterminate, but a considerable saving of the order of 50 per cent could be relied upon with confidence.

Comparative Scantlings in Steel and Aluminium Alloy

Item	Steel	Alloy	Is in.^{4}	Ia in.^{4}	I(y)s in.^{3}	I(y)a in.^{3}	Weight ratio
Side screens and bulwarks	97 in. × 236 in. with 2.55 in. × 2.55 in. × 255 in. O.A. stiffeners at 24 in. centres	97 in. × 30 in. with 2½ in. × 3½ in. × ⅝ in. O.A. stiffeners at 24 in. centres	3.62	8.59	1.81	2.96	0.435
Stringer and Curtain plate assembly A deck	Stringer 20 in. × 236 in. Curtain plate 8.9 in. × .314 in. Stringer L 2.95 in. × 2.95 in. × .295 in. O.A. Gutter L 2.95 in. × 1.95 in. × .295 in. O.A.	Stringer 20 in. × .25 in. Curtain plate 10 in. × .45 in. Stringer L 3 in. × 3in. × ½ in. O.A. Gutter L 3 in. × 2in. × ⅜ in. O.A.	26.1	52.0	4.5	8.02	0.425
Deck Beams B deck (with plate)	0.236 in. plate and 5.9 in. × 2.95 in. × .315 in. B.A.	0.25 in. plate and 7 in. × 3 in. × .42 in. B.A.	24.9	47.0	5.4	9.4	Plate 0.365 Beams 0.49
Deck Beams A deck and New Bridge (no plate)	4 in. × 3in. × .30 in. O.A.	5 in. × 3in. × 34 in. O.A.	6.60	13.75	1.67	2.86	0.44
Plate on A deck	0.236 in.	0.25 in.					0.365
Houses and minor bulkheads	Plate 0.158 in. stiffeners O.A. 2½ in. × 2½ in. × .236 in. at 24 in. centres	Plate 0.190 in. stiffeners 2 in. × 3 in. × ¼ in. O.A.	0.95	1.97	0.47	0.77	0.42

5. Metacentric height, if necessary, was increased by 1.40 ft.

Scheme 3.—Considering Scheme 3 in its extreme form, i.e., with a reduced beam, and allowing for the saving in machinery weight, it might be possible to remove 2 cylinders per engine, making a total of 20 cylinders for the entire installation. In this case, the analysis would be as follows:—

	£
Cost of light alloy, 105 tons @ £220	23,000
Cost of steel replaced, 216 tons @ £21	5,500
Net extra cost of structural material	17,500

The saving in the cost of machinery could be anticipated as being in the region of £40,000, and, thus, the saving in first cost of the ship would be about £23,000. The fuel saving per annum would be approximately £4,500.

Summarising:—

1. First cost reduced approximately £20,000.
2. Capital charges reduced approximately £800 per annum.
3. Annual fuel charges reduced approximately £4,500 per annum.
4. The same remarks regarding maintenance as made in Scheme 1 apply.
5. No increase in metacentric height would be anticipated.

It appears that in a ship of high speed, high structural weight displacement ratio, and with high machinery and running costs, the use of an all-aluminium superstructure would offer an actual increase in the economic efficiency of the ship.

DUTCH SHIPPING AND SHIPBUILDING

REVIEW OF AN INTERESTING YEAR

By THE SHIPPING WORLD'S Own Correspondent

SHIPPING always being an opportunist industry, it can easily be understood that most shipowners in the Netherlands are still as uncertain with regard to the future as they were at the beginning of 1950. Admittedly, the past year has been satisfactory (as 1949 was) and prospects for the coming months are good, but nobody knows what the position will be in a few years and this is what the shipowner has to keep in mind when building up his fleet.

The uncertainty of shipping was clearly shown by recent developments. While six months ago the freight market was still on the decline, there is now, on many routes, a shortage of tonnage, and a fortnight before the end of the year the Far Eastern Freight Conference, the Philippines/Europe Conference and the Japan Outward Freight Conference were even compelled to announce new regulations for and registration of shipments to their ranges, as the demand for space greatly outnumbered the available tonnage. Meanwhile, even if one can speak of a "boom", costs are continuing to rise. Recently an overall 5 per cent rise in wages was allowed by the Government, and other operating costs are much higher than a year ago. The impression remains, however, that on the whole year this has been a very satisfactory one. For 1949 good dividends were paid: Holland-America Line 9 per cent, Java-China Paketvaart 9 per cent, Hollandsche Stoomboot Maatschappij 7 per cent, Maatschappij Nederland 12 per cent, Van Ommeren & Co. 9 per cent, Koninklijke Rotterdamsche Lloyd 8 per cent, Nederlandsche Scheepvaart Unie 11.6 per cent. Many companies added considerable sums to their reserves and it is to be expected that dividends for 1950 will be on the same level. If there were no dividend limit certain companies would no doubt declare higher dividends.

Owners are very careful in ordering new ships, not only because of the high building costs but also because of the uncertainty as to the future. They do not forget that the Dutch merchant fleet has surpassed the prewar level and they only order ships to replace over-age ships in their fleets.

It is a tribute to the foresight of several owners that they had the courage to order new ships early in 1950, when many saw a period of depression and deflation hover in the not so far distance. Yet the year's events proved them to have been right. With building costs jumping they got their ships quite cheap—comparatively speaking, that is—and several recent orders show that costs are expected to rise even higher. The volume of the Dutch fleet is now well over 110 per cent of the prewar volume, as is shown in Table I.

TABLE I.—THE DUTCH MERCHANT FLEET
(Ships of 500 tons gross and over)

	1 September, 1939			1 October, 1950		
	No.	Tons gross	Tons d.w.	No.	Tons gross	Tons d.w.
Passenger ships	49	552,038	385,647	35	360,513	254,504
Cargo-passenger ships	35	162,469	177,896	31	134,416	139,194
Cargo ships	400	1,481,517	2,155,752	393	1,746,032	2,482,435
Tankers	109	528,029	740,962	114	608,944	862,607
Troopships	—	—	—	3	22,883	31,936
	593	2,724,053	3,460,257	576	2,872,788	3,770,676
(Ships of under 500 tons gross)						
Cargo ships	522	125,226	158,556	559	161,128	209,965
Tankers	14	4,682	5,928	17	5,337	6,346
	536	129,908	164,484	576	166,465	216,311
Total	1,129	2,853,961	3,624,741	1,152	3,039,253	3,986,987

According to preliminary figures the Dutch merchant fleet on December 1, 1950, consisted of 581 ships of 500 tons gross and over, totalling 2,882,074 tons, and 579 ships of under 500 tons gross, totalling 167,955 tons, giving a grand total of 1,160 ships and 3,050,029 tons gross. One of the most remarkable facts emerging from these figures is the weakness of the tanker fleet. While all over the world large numbers of tankers are being built, the Dutch tanker fleet is only 115 per cent of that in 1939, notwithstanding a highly increased demand for refined oil and its products and a growing demand for tanker space for crude oil by the new refineries in Western Europe just before and after the last war. World production of crude oil in 1949 was 169 per cent of that in 1947. It would be natural to expect the tanker fleet to grow with at least the same speed as oil production, and in most countries this is the case; not so in the Netherlands. Moreover, of the comparatively small tanker fleet only a few are owned by the two private shipping companies that operate tankers; Phs. van Ommeren and N.V. Gebr. Van Uden. This makes the Dutch merchant fleet rather one-sided, the accent being on regular cargo lines. Tramping is on the decline and the number of shipping companies that only operate tramps is rapidly diminishing.

Passenger Transport

Whereas it can safely be said that no remarkable changes have taken place in the last year as far as the cargo tonnage is concerned, and no striking new additions to the fleet were put into service, there are some noteworthy trends in the passenger range. On practically all routes the demand for passenger accommodation has been high and on the Indonesian route the Dutch Government was even forced to charter several British, French and American ships to repatriate troops and civilians. All Dutch-owned ships on the Indonesia route were booked to capacity—and over—on the return trip. It was remarkable, however, that most ships were also fully booked on the outward journey. Apart from the Dutch troops in Indonesia which had to be repatriated at great speed, many civilians and their families also went back to their home country. Although there is some tension between the two countries, Indonesia still needs Europeans in the civil service, agriculture and industry. People with long colonial experience are not wanted because of their often wrong mentality, and most Dutch firms in Indonesia are therefore replacing almost their entire staff. This provides traffic for the shipping companies which, however, take many emigrants for Australia on the outward journey.

Passenger traffic to and from North America has been highly satisfactory. In a recent interview Mr. W. H. de Monchy, manager of the Holland America Line, stated that this summer established a postwar record. All available accommodation was booked and if more ships had been at hand the traffic would have been considerably higher. There has been a great demand for accommodation by American tourists. Moreover, the United States now being directly involved in European political, economic and military affairs, traffic other than for tourism has greatly increased. Many more people than before the war go to the U.S.A. on business and a large number of American businessmen visited Europe. This trend continues and even grows. Traffic on the North Atlantic route is expected to increase even more in the next years. Competition is keen, but, as Mr. De Monchy said, the situation has still to crystallise. In any event, the Holland-America Line is optimistic and on November 1 the company ordered two new passenger ships, the *Rijndam* and *Maasdam*.

Holland, the most densely populated country in

Europe, has an ever increasing surplus of thousands of people whom it cannot provide with work. An outlet for this surplus has been found in emigration and thousands of Dutchmen and their families have gone and are going to Canada, Australia, New Zealand, South Africa, and South America. Next year their number will be 40,000 and it is hoped to increase this figure in 1952 and following years, the surplus in the near future being estimated at 60,000 heads of families (or future bread winners) per annum. So far transport has been the bottleneck in carrying out the Dutch Government's emigration schemes. Waiting times of nearly twelve months before people accepted for emigration are provided with accommodation to Australia and Canada are quite normal. In 1950 several special emigration ships were chartered; next year thousands will go by air.

New Type of Ship

Other countries are also sending thousands of emigrants to overseas countries. It is clear that a huge demand for accommodation will be the result. This might provide work for Dutch companies as Koninklijke Rotterdamsche Lloyd and Maatschappij Nederland, now engaged on the Indonesia route, of which the future is rather uncertain. As long as the going is good on this route they are, however, reluctant to engage in the transport of emigrants and even if they had their ships available for this traffic, several of them would not be suitable. A luxury liner like the *Willem Ruys* would not do for the carriage of emigrants, and anyway the cost would be too high. Troopships, of which there are plenty available, are as unsuitable. The emigrant has a right to better accommodation than is to be found in a troopship.

There clearly is a need for an entirely new type of ship and the Holland America Line seems to have been the first company in the world to recognise this, for the *Rijndam* and the *Maasdam* are of the new type. When the *Rijndam* and its sister ship were ordered, the hull of the first of this type was already completed by the Wilton-Fijenoord shipyard at Schiedam, originally destined to be named *Dinteldijk* and to serve as a cargo and passenger ship accommodating 60 passengers. The Holland America Line, however, changed its plans, and work on the superstructure was postponed for some time. A few weeks ago the *Rijndam* was launched. The new ships are of 15,000 tons gross and are meant to provide good but not too expensive accommodation for emigrants and, especially on the return journey, for Americans wishing to visit Europe without a spending lot of money. The ships will accommodate 850 passengers in the tourist class and only 40 in the first class. Sixty per cent of the passengers in the tourist class will travel in cabins for two, the rest in cabins for three of four. They will have large saloons, dining rooms, writing rooms, a promenade deck, a swimming bath, a sports room, etc., at their disposal. The cabins will have automatic ventilation and the ships will be air conditioned. The four holds can take 3,000 tons normal and 4,500 tons heavy cargo, 16,000 cu. ft. frozen cargo and 35 to 40 cars. The ships have two Foster Wheeler boilers and a 8,500 h.p. General Electric cross-compound turbine. The journey from Southampton to New York will take eight days. The *Rijndam* and *Maasdam* each cost 20 millions before the war). The first will be put into service next summer, the *Maasdam* a year later. These ships may, as already said, introduce a new trend in shipping. On some routes they could be operated only at a loss, as on the return journey from million guilders (the *Nieuw Amsterdam* cost under 14 Australia, for example, bookings might be small. The Governments concerned are, however, almost certain to subsidise emigration in the future, and this would guarantee the shipping companies a good run. Emigration can be expected to provide a large demand for transport for many decades (if it ever ceases) and this would justify the building of similar ships.

Tables II and III show that during the first eleven months of 1950 61 ships, totalling 83,618 tons gross, were delivered by Dutch yards to Dutch owners, who also saw five cargo ships, totalling 30,151 tons gross, and three tankers (14,846 tons gross) completed for them by British yards and one tanker of 10,560 tons gross in Sweden. On December 1, 1950, 89 ships totalling 128,880 tons gross were under construction in Dutch yards for Dutch owners, as well as three cargo ships (20,000 tons) and two tankers (10,000 tons gross) in British yards.

The events of the last months have not to any considerable extent led Dutch owners to rush orders for new ships other than for replacement purposes. Most foreign owners took the same attitude, and as a consequence the Dutch shipbuilding industry has so far not felt the results of the Korean war in abnormal orders. It was, naturally, much affected by the war as far as prices of steel and other materials were concerned. Most Dutch yards are therefore once again unable to accept orders at fixed prices. As before, future owners of new ships have to bear part of the risk of a further rise in the production costs. Wages have risen by 5 per cent since the review of the situation in THE SHIPPING WORLD of June 14, but Dutch shipbuilders are still able to hold themselves against foreign competition. There was no rush of orders, but contracts flowed in steadily, many of them from foreign owners. Several of these orders were from people who knew they would have to order new ships before long and thought it wise to order now before costs begin to rise even more. In the first eight months of the year Nederlandsche Dok en Scheepsbouw Maatschappij at Amsterdam, for instance, received orders for eight ships, for a total of over 70 million guilders.

Ships on Order

The largest ships ordered from Dutch yards in the past year included an 18,000 tons gross twin-screw motor passenger ship for the Swedish America Line, Stockholm (Kon. Mij. De Schelde, Flushing), the 15,000 tons gross *Rijndam* and *Maasdam* for the Holland America Line and the 17,300 tons d.w. motor tanker *Orléanais* for the Soc. Française de Transport Petroliers (Wilton Fijenoord, Schiedam), a 14,400 tons d.w. motor tanker for Finland (C. van der Giessen & Zonen, Krimpen a.d. Yssel), a 24,000 tons d.w. motor tanker for Panama, a 24,000 tons d.w. motor tanker for the Cie. Navale des Petroles S.A., Paris, a 20,000

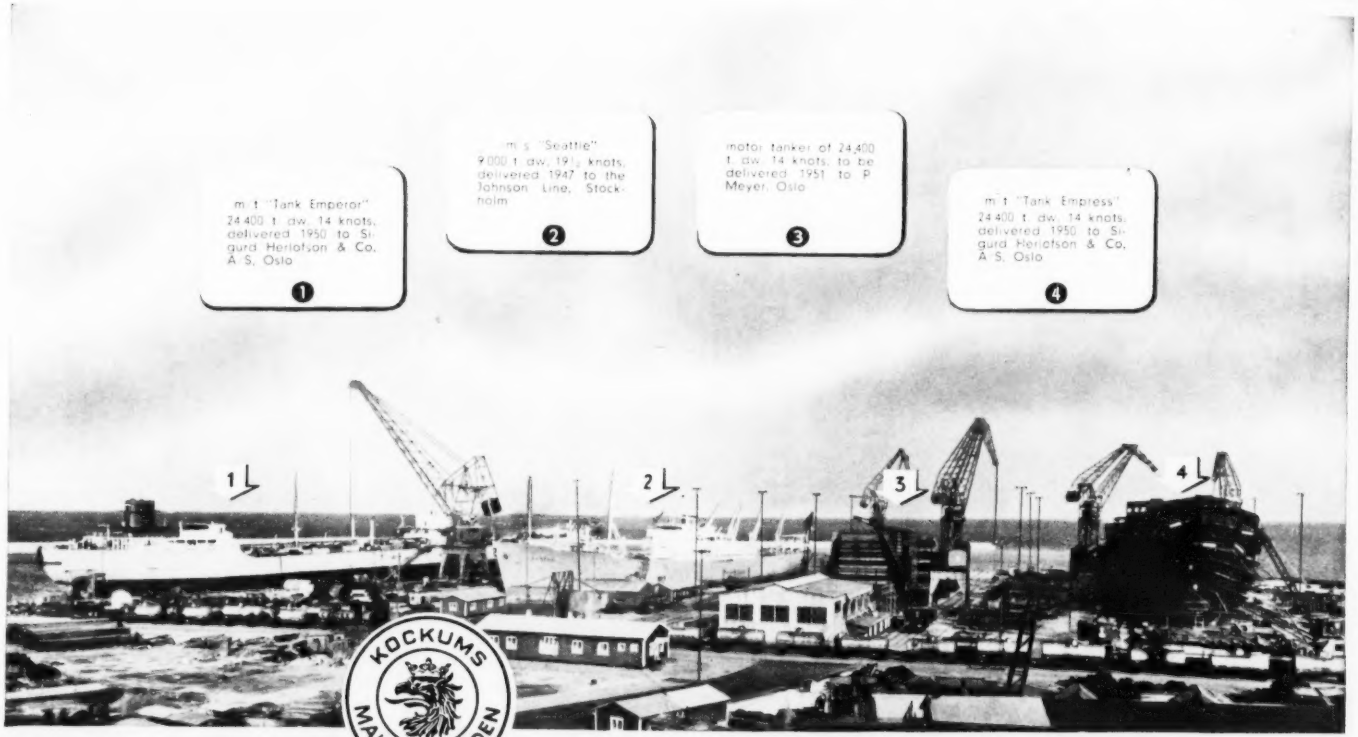
(*Continued on page 80*)

TABLE II.—PRODUCTION OF DUTCH YARDS
(Ships delivered during the first eleven months of 1650)

	Dutch owners		Foreign owners	
	No.	Tons gross	No.	Tons gross
(Ships of 500 tons gross and over)				
Passenger ships	2	19,201	—	—
Cargo-passenger ships	1	11,195	—	—
Cargo ships	16	20,006	8	25,000
Tankers	2	17,083	6	53,000
	21	67,485	14	78,000
(Ships of under 500 tons gross)				
Cargo ships	43	16,133	3	1,000
Tankers	—	—	1	500
	43	16,133	4	1,500
Total	64	83,618	18	79,500

TABLE III.—SHIPS UNDER CONSTRUCTION (OR ORDERED) IN DUTCH YARDS ON DECEMBER 1, 1950

	Dutch owners		Foreign owners	
	No.	Tons gross	No.	Tons gross
(Ships of 500 tons gross and over)				
Passenger ships	3	38,600	4	53,000
Cargo-passenger ships	—	—	—	—
Cargo ships	17	60,900	18	54,000
Tankers	—	—	19	223,000
	20	99,500	41	330,000
(Ships of under 500 tons gross)				
Cargo ships	68	28,900	1	400
Tankers	1	480	—	—
	69	29,380	1	400
Total	89	128,880	42	330,400


m.t. "Tank Emperor" 24.400 t. dw. 14 knots, delivered 1950 to Sigurd Herlofson & Co. A.S. Oslo
1
m.s. "Seattle" 9.000 t. dw. 19½ knots, delivered 1947 to the Johnson Line, Stockholm
2
motor tanker of 24.400 t. dw. 14 knots, to be delivered 1951 to P. Meyer, Oslo
3
m.t. "Tank Empress" 24.400 t. dw. 14 knots, delivered 1950 to Sigurd Herlofson & Co. A.S. Oslo
4
1
2
3
4
KOCKUMS MALMÖ - SWEDEN

KOCKUMS

MEKANISKA VERKSTADS AB

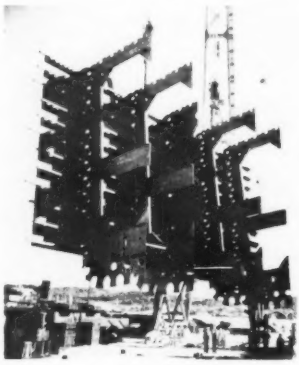
MALMÖ

FOUNDED 1840

SHIPBUILDERS

ENGINEERS

REPAIRERS



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SWEDISH SHIPPING AND SHIPBUILDING

INCREASED EARNINGS FROM SHIPPING : DECLINE IN SHIPBUILDING ORDERS

By THE SHIPPING WORLD'S Own Correspondent

THE EARNINGS of Swedish shipping during 1950 were much larger than expected. The national budget estimated a net income of Kr.530 mn., but by the beginning of December the total freight revenue could already be estimated at more than Kr.600 mn. Since the first months of the year, the character of the freight market has completely changed. Gross freights for the first quarter amounted to Kr.218 mn. and disbursements to Kr.124 mn. The figures for the second quarter were Kr.225 and 124 mn. respectively, but the largest increase took place during the third and the fourth quarters; the rise of the gross revenue being estimated at between 10 and 15 per cent during the third and 20 to 25 per cent during the fourth quarter. A rough estimate gives a gross income of Kr.1,200 mn., leaving a net income of more than Kr.600 mn. after the deduction of expenses abroad.

During 1950 the supply of cargoes for Australia was better than in 1949 and Rederi A/B Transatlantic, as well as other pooled services, had eight sailings monthly to Australia, whereas two sailings monthly were considered good before the war. Consequently the shipowners found it necessary to charter extra tonnage, which was hardly remunerative. The number of regular Swedish sailings to Africa has also increased considerably. Between Sweden and the U.S.A. the supply of cargoes was satisfactory, although it was insufficient for homebound vessels.

General Advance in Rates

For tramp shipping the advances in rates are more general and, except when vessels are time chartered, greater profits must be expected. During May and June the average freight rates for ocean-going time-chartered vessels were between 18s. and 19s. per ton per month, increasing to 24s. and 26s. during September. It is known that the war in Korea has resulted in a soaring tonnage demand. Svenska Ostasiatiska Kompaniet (Swedish East Asiatic Co.), as well as other companies in the Far East trade, were the first to note the rising demand, resulting in full cargoes in both directions and obliging the company to employ extra tonnage within the narrow limits laid down in the conference agreements. Outward traffic to India Pakistan, the Persian Gulf and the Red Sea was favourable the whole year, but less satisfying in the homeward direction, notwithstanding a marked improvement during the fourth quarter.

Cellulose is the most important export cargo carried by liners from Sweden to the U.S.A., amounting to about 70 per cent of all export cargoes. The low rates applied by the shipowners during normal times were possibly only when homebound cargoes were sufficient to give some profit. This is no longer the case. Sweden's dollar shortage makes a reduction of imports from the U.S.A. necessary, while the heavier export of cellulose to U.S.A. involves the employment of expensive extra chartered tonnage, so that shipowners maintain that higher rates are fully justified.

With soaring operation costs and reduced profits, the smaller Swedish tramp tonnage has reached a point where it might as well be laid up, in spite of its relatively insignificant volume since the war. This applies also to the coastal trade as a whole, which has to fight against the discriminatory tariffs of the Swedish State Railways. The situation for sailing vessels was somewhat eased during the autumn when the transport of sugar beet and oilseed created a sudden demand for coasters. To withstand severe competition from German and Dutch coasters, the Swedish Board of Trade stressed the need for the proposed loan fund for financing the renewal or re-equipment of the coastal shipping.

During the first six months of 1950 the gross tonnage of the Swedish Merchant Navy increased by 1,570 tons. Allowing for vessels sold and bought abroad, as well as vessels built for Swedish shipowners, the total at the end of October 1950 was 2,213 vesels of 2,099,852 tons gross, of which 624 were steamers of 638,426 tons gross and 906 motorships of 1,392,712 tons gross. Tonnage laid up on July 1, 1950, comprised 129 vessels of 50,202 tons gross, whereas the figures in December, 1949, were 49 vessels and 76,453 tons gross.

Shortage of Officers

As usual, some of the most urgent problems facing Swedish shipping were brought to the fore during *Sjöfartsriksdagen* ("The Shipping Parliament"), the annual meeting of the General Swedish Shipping Association and other shipping organisations. It was pointed out that the shortage of ship's officers is mainly due to the new crew regulations for shorter working hours. In May the deficiency of masters and navigating officers was about 425, while 650 engineers were needed. The influx of officers from Germany and the Baltic countries is insufficient, the result being that a great number of uncertified officers have to be employed instead, with grave consequences as far as safety at sea is concerned. Proposals to drop the new 8-hour day and reintroduce the two-watch system were rejected by a representative of the Engineer Officers' Union, who maintained that Swedish shipping had suffered a shortage of officers for 30 years and could never expect an improvement if this point was considered the decisive factor. On the other hand, better conditions afloat would attract people to the sea. To be sufficiently manned the seagoing Swedish merchant fleet requires about 3,000 officers, plus 170 officers for regular leave replacements and about 30 for unexpected relief. A yearly recruitment of 130 new officers is the absolute minimum.

Busy Ports

Gothenburg has had a fine year with increased port traffic and a marked boom at the close of the year. The export trade through Gothenburg after three-quarters of the year already amounted to 1,181,145 tons, and the earlier peak figure, namely 1,340,000 tons for the whole of 1937, will probably be surpassed this year. Once again Gothenburg maintains its position as the foremost Swedish port for export goods and not even Copenhagen, the biggest seaport in Scandinavia a few years ago, can show comparable export figures. Outbound timber and wood products have increased remarkably, one of the most striking differences from earlier years being the fact that wood products nowadays are chiefly exported as semi-manufactured and finished products. A similar development is noticeable also in connection with the export of pulp products. The import traffic is also showing an increase—2,440,000 tons for the first nine months of the year, in comparison with 1,800,000 tons for 1949. The position of oil on the import list is most striking, with 923,338 tons, against 272,478 tons during a normal year such as 1938. The import of coal through Gothenburg, however, has decreased from 902,637 tons in 1938 to 688,603 tons in 1950. Gothenburgs' sudden appearance as an oil exporter is mainly due to the greater activity of the Koppartrans Company, whose products are chiefly destined for neighbouring countries. Last year the total incoming and outgoing tonnage was 16,500,000 net register tons and, since about 1,000 more vessels called at Gothenburg during three-quarters of 1950 than

(*Continued on page* 78)

FRENCH SHIPBUILDING TODAY

NOTES ON CURRENT TECHNIQUE AND TRENDS

By A. C. HARDY, B.Sc., M.I.N.A.

THE adventurous spirit now existing in French shipbuilding is indicated by such designs as that of the *El Djesair*, a passenger ship with machinery aft for the North African service, and a similar ship, the *Lyauteÿ*, with machinery two-thirds of the way aft. The good fortune which has attended certain shipyards in their ability completely to re-equip themselves after war damage, is reflected in a tendency to espouse prefabrication and all-welding methods on a large scale, a vivid appreciation of the possibilities of modern steam propulsion and a more conventional approach to diesel propulsion. All this is shown in the type of powering which is being built at the present time for a large number of ships of different types. This adventurous spirit is particularly emphasised by the adoption of the Pescara free piston gas generator and geared turbine, which is to be employed for the propulsion of two coasters of 850 tons deadweight under construction at Le Havre, and in a group of minesweepers for the French Navy.

French shipbuilding at the moment stands at the crossroads and it is difficult to predict what the future will hold for it in view of the instant preoccupation of most of the Western powers with rearmament. By tradition no less than by equipment many of the French shipyards are suitable for the construction of warships of all kinds, and those which are fitted for prefabrication methods might well be of value for the quantity production of ships such as escort vessels. Only those responsible for strategic planning at high levels on an international basis will be able to determine whether France's shipyards are too near to a potential enemy to be used in this connection.

Be that as it may, in the past few years French yards have been actively employed in building under Government sponsored programmes for French owners, and at the same time the latter have been actively building elsewhere, for example in the United States, in Great Britain, in Denmark, and latterly in Germany. As soon as that programme of rehabilitation has been completed there may well be a slowing down in demands for tonnage from French yards. Indeed several of them have nothing further to lay down when once their existing commitments have been met. Then export shipbuilding must be sought. At the present time passenger liners, cargo liners, tankers, coasters, cross-Channel ships and fishing vessels are on the stocks.

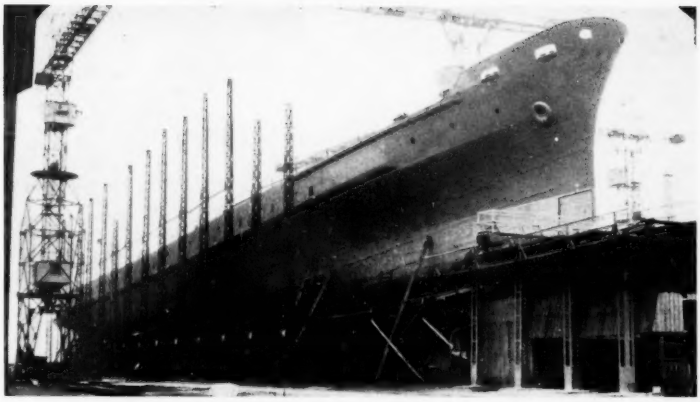
One of the largest and most interesting of the passenger ships is the liner *Flandre*, building for the French Line's Caribbean service. She is one of a pair, the other being the *Antilles*, which is under construction in the Naval Dockyard at Brest. The *Flandre* is one of the most important ships to have been constructed by the Ateliers et Chantiers de France at Dunkirk. She has a most unusual hull form, the noteworthy points of which are a raking soft-nosed bow with bulbous forefoot, exactly resembling the ram bow of an old cruiser, and the special skegs at the stern. These no doubt will all contribute to a service speed of at least 23 knots with some 40,000 horsepower, but one cannot help wondering what the effect will be on her manœuvrability in enclosed waters, especially if she is called upon to enter a lock system. The *Flandre* is also interesting from the point of view of her cabin arrangement. She has several *suites-de-luxe* and among them cabins with folding beds which can be converted into sitting rooms during the day.

More Passenger Liners

The *Flandre* and the *Antilles*, when completed, will run alongside the old *Colombie* of the Compagnie Générale Transatlantique, completed in 1931 at Penhoet and reconditioned this year at the de Schelde shipyard in Flushing. The reconditioning was accompanied by a considerable amount of internal reconstruction, the removal of one funnel and the substitution for it of one large streamlined unit—a change which has increased the amount of deck space available. The ship carries 584 passengers in three classes, and is of 13,390 tons gross. When she went into service in the autumn of 1950 she followed a new itinerary, sailing from Le Havre and calling at Southampton, Pointe à Pitre, Fort de France, Barbados, Trinidad, La Guaira, and Jamaica; thus inaugurating a regular passenger service to Kingston, a port which, like many other West Indies ports, is ill served by British passenger ships of distinction.

Two other important passenger ships now under construction are the *Ville de Marseille* and the *Ville de Tunis*, building respectively at La Seyne and at the Lorient naval yard. Incidentally, it is a point to be noted that in the absence of warship contracts France has pressed her naval yards into the active construction of merchant ships, and that in some of them very

The twin-screw motor tanker "Bérénice," 31,000 tons d.w., under construction at the Penhöet shipyard, St. Nazaire.



The turbine steamship "Côte d'Azur," under construction by Forges et Chantiers de la Mediterranee, for the Dieppe-Newhaven cross-Channel service

advanced technique in the art of prefabrication has been adopted. The two new ships are slightly larger than their predecessors, the *Ville d'Alger* and *Ville d'Oran*, having a displacement of 8,662 tons on 21 ft. 6 in., compared with 8,840 tons on 21 ft. 7 in. for the older ships. Horsepower and speed are slightly less. The total number of passengers carried is also less, being 980 compared with 1,004, the reduction being entirely in the deck passengers; first and third class at 148 and 364 respectively remain the same. The layout of these ships is reasonably modern, but there is a large number of two-berth cabins. The public rooms seem to be rather small and a large proportion of the ship is devoted to crew accommodation. It was these ships, it may be recalled, for which M. Pierre de Malglaive made some startling proposals in a paper which he read recently, arguing that ships of this kind were nothing more nor less than floating sleeping-car trains and should be designed accordingly, with minimum space for dining and public rooms, because the service was a night one, and an all-night steward service. His rather revolutionary proposals were not adopted and the best that can be said is that these ships are slight improvements on their predecessors.

The propelling machinery consists of two sets of geared turbines, those in the *Ville de Marseille* being of a special type made at La Seyne, operating at 850 lb. per sq. in. and a final temperature of 896 deg. F., while those in the *Ville de Tunis* are Velox boilers, thus establishing the fact that France has used more boilers of this kind than any other merchant marine, though this is the first occasion on which the whole of the power plant has been entrusted to them. Mention of the Marseilles-Algiers route recalls that an interesting proposal has been put forward for the establishment of a train ferry service between the two ports, which would permit of a through service in refrigerator vans between Paris and Casablanca of fruit and fresh vegetables. This project, however, has yet to be realised.

Interesting Completions

Other interesting completions include the first of a class of eight similar ships built for the South American service of Chargeurs Reunis. These ships are not as ambitious as the big passenger liner *Pasteur*, 30,447 tons, completed for the Compagnie de Navigation Sud Atlantique in 1939. This ship is still engaged in trooping, and has thus never been engaged on the South American route. The *Claude Bernard*, as the first of the series of eight for Chargeurs Reunis is called, is a combination passenger and cargo ship of 11,500 tons gross, carrying 100 first and 230 third class passengers, with a maximum power of 12,000 horsepower and a service speed of about 17 knots. Unlike many of the ships built recently in France, the *Claude Bernard* is a motorship, with propelling machinery consisting of two Sulzer single-acting two-cycle airless injection engines having eight cylinders with a normal service rating of 10,000 h.p. at 120 r.p.m. In addition to the capacity for passengers there are six cargo holds with a total of 430,800 cu. ft., of which 317,800 cu. ft. is for general and the remainder for refrigerated cargo.

There seems to be a tendency among French shipbuilders to favour twin screws wherever possible. This is noteworthy in the case of the tanker *Bérénice* and her sister ship, the *Bethsabee*. The former is now completing, while the latter is approaching the launching stage, at the Penhoet shipyard at St. Nazaire. The *Bérénice*, of some 31,000 tons deadweight, claims to be, for the time being, the largest motor tanker in the world. She has a length between perpendiculars of 619 ft. and a draught on summer loadline of 35 ft. 3 in. She is propelled by two Burmeister & Wain type single-acting two-cycle engines, having an output of 6,700 b.h.p. each at 121 r.p.m. The service speed is mentioned as about 15 knots, and in view of the fact that at the beginning of her career, at any rate, this big ship will regularly transit the Suez Canal, special experiments were carried out in the Tank at Paris to determine her manœuvrability in these exceptional conditions. She has one of the largest rudders ever fitted to a tanker, and is the first ship in the world to be fitted with a "wavy" bilge keel, which gives a most extraordinary effect when the ship is on the stocks and is the idea of the superintendent of the Tank in Paris, being intended to follow wave flow.

A.C. Auxiliaries

Another interesting point is the fact that all the auxiliaries in the engine room are driven by alternating current, there being two generators of 715 kVA driven by chains and through Vulcan couplings from the propeller shaft. Part of the power for driving them is obtained from the main engines and the remainder from the steam turbines, which take steam from an exhaust boiler. When the main engine speed drops below 98 revolutions per minute, the turbo-generators immediately take over. In addition there is an ordinary turbo-alternator of 125 kW and a diesel drive unit for port use of the same output. The *Bérénice* is one of the few tankers afloat today in which the whole of the crew accommodation is air conditioned, and this has naturally had an effect on the auxiliary load requirements.

The Forges et Chantiers de la Mediterranee at La Seyne possess an engine shop on the outskirts of Le Havre and a shipyard at Graville, on the Seine. One of the most interesting ships launched there recently is the cross-Channel ship *Côte d'Azur*, which is now fitting out for the Dieppe-Newhaven packet service

jointly maintained with British Railways. There have long been minor differences in conception between the French designed and British designed ships for this service, but the difference has never been so marked as that between this ship and, for example, the *Brighton*, which recently went into service for British Railways. The *Côte d'Azur* has a curved fashion-plate stem of extreme proportion. Her forefoot is semi-bulbous, but at the same time manages to conceal a bow rudder. There is a knuckle which extends from just abaft the hawsepipe on either side for the full length of the ship, joining up into a stern which can scarcely be called of cruiser type but which, on the other hand, does not merit the term counter. The knuckle is protected throughout 75 per cent of its length with a large rubbing strake. There is also a rubbing strake at the deck edge above extending about 30 ft. abaft an exceptionally long bow chock with two openings for bollards. The sheer of the ship forward is sharply exaggerated and the side of the ship connecting the first tweendeck with the weather deck is vertical because of the existence of the knuckle, and is pierced by large oblong windows. Like most of the ships on this run, the *Côte d'Azur* is to be equipped with watertube boilers and geared turbines, the latter building at St. Nazaire.

These few notes give an idea of some of the work which has been going on in the French shipbuilding and marine engineering establishments during 1950. Their future will be watched with interest, but in the meantime it is interesting to know that under a new law foreign engines can be imported duty free. At the same time French shipyards are very anxious to obtain orders from abroad.

SWEDISH SHIPPING & SHIPBUILDING

(*Continued from page 75*)

last year, the total tonnage for this year may well reach 18,000,000 tons.

Extensive port improvements are being carried on with great energy to accommodate the constantly increasing number of ships. Two new quays are under contruction, one of which, the new England Quay at Maj Nabbe, with deep-water accommodation, is being reserved for Swedish Lloyd and Swedish American Line vessels. The work, at a total cost of Kr.12,000,000, will be completed within a year. The Lundby Port is being constructed behind the free port on Hisingen Island, where steady progress is being made with excavations. These quays, with a total length of about 1,950 ft., will probably be opened for traffic during the winter of 1951-52. The cranes are in both cases to be delivered from Czechoslovakia at a cost of about Kr.6,000,000. The Harbour Board proposes the purchase of a floating crane with a lifting capacity of 150 tons, the existing one lifting 80 tons.

In the port of Malmö imports and exports totalled 1,376,000 tons for the first nine months of 1950, compared with 1,067,000 tons in 1938, while the number of passengers crossing the Sound to and from Copenhagen has doubled from 1,000,000 in 1938. During recent years several industrial concerns have established themselves in Malmö and this has prompted the large-scale expansion now being carried out, i.e., another basin with a length of 2,700 ft.

Proposed New Canal

At Norrköping, where the authorities recently decided to start on the Lindö Canal scheme, the port traffic has been lively throughout the year and the export and import figures are expected to reach the level of the busiest years before the war, about 2,000,000 tons. The project of digging a canal for shipping through the Lindö Peninsula to shorten the access to the port from the Baltic has long been contemplated. At present ships have to pass through a 7-miles narrow and winding approach. The new canal will reduce the distance to only 3.5 miles and thus undoubtedly make the port of Norrköping more attractive for larger vessels. The cost of this canal, 198 ft. in width and 30 ft. in depth, as well is the equipment of the quays, is estimated at Kr.25,000,000. The works are to be completed within four years.

The port of Stockholm, with its nearly completed 1,500-ft. extension of the Stadsgarden Quay at Tegelviken, had 273 arrivals and 281 departures during October, with a total tonnage of 659,219 tons net, and the corresponding figure for June–October 1950, was 6,647,551 tons. During the same period of 1949, Stockholm had 5,618,900 tons. For the Stockholm Free Port the traffic figure is exceptionally high, surpassing the total for 1949, and it is expected to reach 250,000 tons for the year. To accommodate the increasing number of vessels a new 500-ft. quay is under construction, while a second new quay will receive attention after the completion of the first one within a few months. Fourteen new cranes have been ordered, of which three are 10-tons and eleven 5-tons cranes. Recently a deputation from Uddevalla asked for Government aid to build new deep-water accommodation and a marshalling yard. About 260,000 tons goes through Uddevalla annually, but the Port Captain, Mr. T. Carlsson, expects a rise to 600,000 tons a year when the proposed pier is completed.

To summarize, Sweden's shipping trade with foreign countries amounted to a net tonnage of 19,969,037 tons in January-October 1950, which signifies an increase of over 2.5 million tons compared with the same period of 1949. The outgoing net tonnage was 20,190,987, against 17,526,124 tons in 1949.

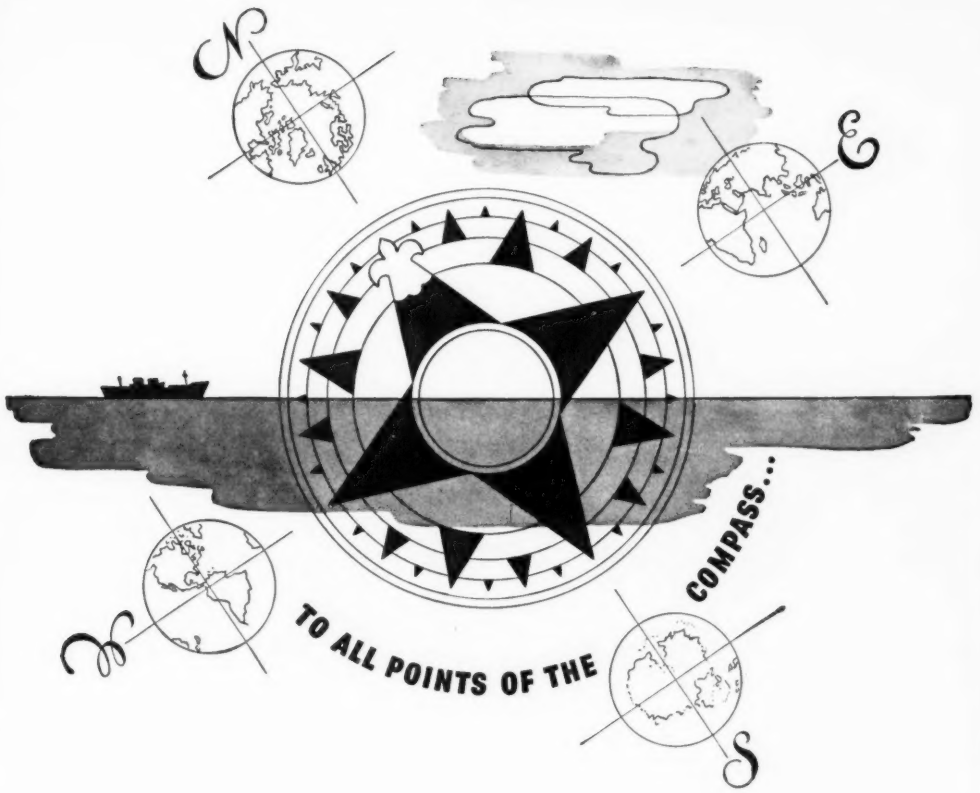
Increased Shipbuilding Output

In 1950 the volume of Swedish shipbuilding production was ten times larger than in 1919, and Sweden's percentage of world output of vessels has risen from 2 per cent in 1925 to 10.5 per cent in 1950. The number of workers in the yards has followed suit with a 40 per cent increase since 1939, but thanks to a continued rationalisation policy capacity increased by 100 per cent. Sweden is actually second only to the United Kingdom as a shipbuilding nation, not only as far as tonnage under construction is concerned, but also when taking delivered tonnage in account. On September 30, Sweden had 69 vessels under construction, aggregating 338,610 tons gross, and 79 per cent was for foreign shipowners.

Among the problems confronting the Swedish yards during the year may be mentioned the shortage of skilled labour. The revival of German shipbuilding does not give any grounds for fear as there is a steady increasing demand for tonnage and the Swedish shipyards generally have orders to last until 1953 and further ahead. On the contrary, German steel production will be of great value for Swedish shipbuilding, which, however, cannot reckon on any labour supply from Germany. The noticeable break in the flow of new orders at present is probably caused by currency restrictions in respect of Norwegian orders abroad.

Swedish shipowners have been rather reluctant to order new tonnage owing to high shipbuilding costs and the fact that the yards are unwilling to give fixed prices. It has been apparent with each delivery that costs were 10 to 20 per cent higher than the original estimates. The strong desire for fixed contracts on the part of the shipowners seems to have had some result, but as the Swedish yards cannot offer any deliveries before 1953 one is once again confronted with sliding scale problems.

Although in general it is too early to give any complete figures for the production of the various yards, it may be mentioned that in 1950 Kockum's shipyard delivered four cargo liners and seven motor tankers with a total deadweight capacity of 157,000 tons and a gross tonnage of 105,000 tons; the corresponding figures for 1948 were 106,000 tons d.w. or 69,000 tons gross and for 1949 151,000 tons d.w. or 96,000 tons gross.



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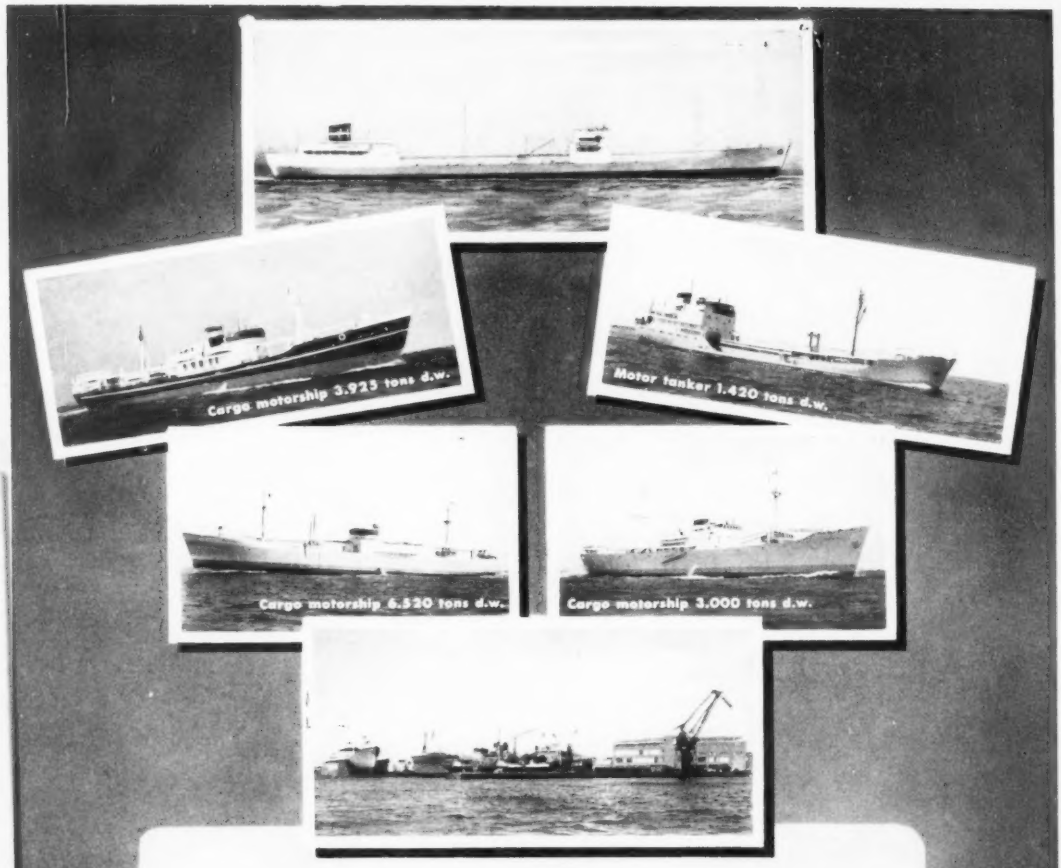

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NORWEGIAN SHIPPING AND SHIPBUILDNG

AN EXTRAORDINARY YEAR : PROSPECTS FOR 1951

By THE SHIPPING WORLD'S Own Correspondent

THE YEAR 1950 has been an extraordinary year for Norwegian shipping in more than one respect. The Norwegian fleet has grown from some 5.1 mn. tons gross at the beginning of the year to more than 5.5 mn. tons gross at the end. Twelve months ago 2.1 mn. tons of the fleet were tankers, and this figure had grown to almost 2.5 mn. tons at the end of December. In fact, practically the whole growth in the fleet took place within the tanker section. According to Norwegian Veritas statistics at November 1, 141 vessels of 525,245 tons gross were delivered during the first ten months of the year and in the last two months 16 vessels of some 100,000 tons gross have been delivered.

On the other hand the sale of old tonnage to foreign buyers has been greater in 1950 than in any other year since before the war. According to Veritas 61 vessels of 147,420 tons were sold during the first ten months. In November six vessels were sold abroad and in December more followed, making a total of some 70 ships of altogether about 170,000 tons gross sold abroad during the year. This figure may well constitute a record in the history of Norwegian shipping and we must examine more closely what kinds of ships have been sold and the reasons for the sales. The large number of vessels compared with the tonnage should indicate that they were rather small, and it is a fact that between 45 and 50 of the vessels were all small ones, only three of them being above 5,000 tons d.w. and most of them between 2,000 and 3,000 tons d.w. The greatest number are old vessels, but there are also a new ship fitted with a Fredriksstad Steam Motor and a motor vessel that was built during the war but rebuilt and overhauled after the war. In addition three fruit carriers, one of them built since the war, were sold. About 15 are larger vessels, among them five large tankers and about ten cargo vessels, most of them old cargo liners. The greater part of the vessels sold went to German buyers, but ships were also sold to Italy, England, Denmark, Poland, Israel, Greece, Panama and the Philippines.

Reasons for Ship Sales

In analysing the reason for all these sales, we have to consider first of all the precarious currency situation. Some ships, in particular the new ones, were sold in order to obtain foreign currency so that the owners could use that currency for ordering new tanker tonnage from foreign yards. All the fruit carriers were sold for this reason and it goes to show that Norwegian owners expect that the market for tankers will be better than for fruit ships in the future. To judge from the situation at the end of the year there is much to speak in favour of such an argument. The tankers sold were all old or vessels that had served long enough but there can be no doubt that the tight currency situation had something to do with the sales. This reason is perhaps still more predominant in the case of the cargo ships, as the only way the owners could hope to obtain a currency licence would be by offering to finance the whole currency outlay with the money obtained by the sales and loans abroad.

The small vessels, about 40 of them very old ones, were sold for different reasons, mostly because they were too old for the owner to be able to operate them remuneratively. The sale of so many ships is, however, a significant step. In the past these small vessels have carried coal, not only to Norwegian industries and homes from British, Polish and Continental ports, but also to Swedish and Danish ports. At the beginning of 1950 competition from Polish, German and Dutch vessels became too severe and at the same time the law regulating working hours at sea became so strict that the crew needed under the Norwegian, Swedish or Danish flags numbered up to two-thirds as many again as in a Dutch vessel of the same size. This was not all, however. Better quarters were prescribed for all vessels. In their new ships, Norwegian owners had, of course, taken into consideration that better quarters would be demanded and dayrooms as well as cabins for the men in all the Norwegian new buildings are far above even the present standard demanded by law. But the small ships, the greater part of them built in the 1920s and some even before the last war, by no means had quarters that would come anywhere near the standard now prescribed. Dispensation from the new rules was applied for and obtained, but only until the vessel either underwent major repairs or ordinary survey. That meant that the small vessels had to build on an extra house on the poop, as in most cases there simply was not room enough for the extension under deck. With the present-day high prices at the repair yards this became a hopeless proposition, and consequently the vessels were sold abroad as they became due for survey.

In 1948 the sale of handy vessels abroad was forbidden by the Government, because these vessels were needed to carry cargoes to Norway. Owners who want to sell abroad must now have an export licence too, but we know of no instance where such a licence has been held back in 1950. And in December Mr. Nore, managing director of the Norwegian Coal Import Board, said that he did not want to requisition small vessels. He thought that kind of tonnage had for a long time operated at very low rates and did not think it right to requisition vessels for coal transport just because rates for a short while rose above the maximum specified by the Government, besides—and this is the point—he did not think it would be difficult to obtain the necessary tonnage to shift the coal cargoes that could be obtained in British, Continental or Polish ports. Will then the handy-sized vessel be something of the past in the Norwegian tramp fleet of the future? Industry is fast converting to oil burning or electricity, and so are many homes all over the country. Coal consumption has consequently diminished to about one-half the prewar quantity, and may quite likely be reduced to one-half of the present tonnage in the coming ten years. This state of affairs, together with competition from German and Dutch vessels in the timber-carrying trade to Great Britain, can point in only one direction and, as we have seen, Norwegian owners have taken their bearings, since besides selling their old handy ships they have either cancelled or converted such contracts as they had concluded with various yards after the war for handy-sized vessels.

New Wage Agreement

A new wage agreement was negotiated for overseas trading in October and came into force on December 1. In this agreement the seamen's representatives are the first of all the Norwegian trade unions to acknowledge the principle of making a bigger difference between payments for skilled and unskilled labour, as they have agreed to reduce the wages of the boys and increase the ABs by that amount. The wage agreement did not lead to any additional outlay on the part of the shipowners, but the agreement also contained a clause giving the seamen a similar cost of living bonus as that obtained by the workers ashore, and this meant a rise in wages varying from Kr.10 a month for boys to Kr.27 a month for ordinary seamen and seamen of higher ranks. After the war the quality of Norwegian seamen seemed to have deteriorated. This has happened after all major wars and it can easily be understood because the young men being sent out from

Norway in 1945 and 1946 had learned to disobey authority for five years. This state of affairs has now changed noticeably and during 1950 reports being received all go to show the remarkable change which has taken place. Men remain on board the same ship for a longer period and this has gone a long way to ease the shortage of men which has caused such difficulties in the past.

During 1949 Kr.820 mn. of foreign currency was earned by the Norwegian merchant fleet. In the national Budget, published in January 1950, it was estimated that the total currency earnings would be about Kr.950 mn. Although the official figure is not available as yet, it can be said that the currency gain of the Norwegian merchant fleet may well be more than Kr.1,100 mn. for 1950 and thus go a long way to meet the extra cost of imports. The budget reckoned to use Kr.3,700mn. for this purpose, but by the end of November a sum of Kr.4,425 mn. had been spent on imports, although at the same time the value of exports had risen. Compared with the Budget estimate of Kr. 2,440 mn., by the end of November exports had reached some Kr. 2,520 mn. These figures include the value of imported and exported ships. In the first 11 months of 1950 some Kr. 780 mn. worth of ships had been imported, while Norwegian owners in the same period had sold about Kr.90 mn. worth of second-hand tonnage. If the net value of shipping imports and exports is deducted from the gross cost of imports it will be seen that the imported goods and services cost Kr.3,735 mn., and adding Kr.1,000 mn., being income from shipping services, to the export figure we reach a sum of Kr.3,440 mn., which nearly balances. It is when looking at these figures and realising that income from Norwegian shipping services very nearly covers one-quarter of the whole cost of imports that the importance of the country's merchant marine is understood.

Restriction on Currency Licences

Although the importance of shipping is realised by the highest authorities, Norwegian owners have for two years now been struggling to obtain currency licences abroad. The Norwegian Shipowners' Association has time and again drawn attention to the bad effect of a total refusal to grant currency licences for building abroad, but only in December last did it look as if the situation was going to be eased, and it is hoped that in 1951 more opportunities will be given to Norwegian owners to order new ships from abroad.

It is evident that the difficulties Norwegian owners had in obtaining licences for building abroad was a great fillip to the yards at home. Many orders for large tankers were placed at various yards. In our last annual review we stated that seven large tankers had been ordered, four of 16,000 tons d.w. from Rosenberg and three of 13,500 tons from Fredriksstad mek. Verksted. Today these figures have been increased. Rosenberg is to build at least five of 16,000 tons d.w. and two have already been started—the first is to be launched early in the spring. Fredriksstad mek. Verksted has announced details of four orders but has received more. Framnæs mek. Verksted is to build three tankers of 15,750 tons d.w. and the same number of orders has been received by Kaldnes mek. Verksted for tankers of 18,000 tons d.w. The Naval Yard at Horten is to build two large tankers, one of about 16,000 tons and the other of some 18,000 tons d.w.; and at Akers mek. Verksted a tanker of 15,000 tons d.w. will be built. In other words some 20 large tankers have now been ordered at Norwegian yards, 13 of them during 1950. These orders have filled the order book to such an extent that none of these yards can offer delivery until after 1954, and Fredriksstad mek. Verksted even indicates after 1957.

Last year it was thought that steel difficulties were something of the past. That is by no means the case this year, when many yards are finding it very difficult to obtain the necessary amount and the right sizes of steel. Most of them have as yet large stocks, but if the difficult supply conditions should continue the steel shortage may well once more be the stumbling block for Norwegian yards. Already hints are given of postponements in deliveries because of the steel shortage. Labour shortage has, as before, caused great difficulties during 1950. The number of employees in the yards is still about 13,000, a number which has remained practically stationary for the last four or five years; and practically all the yards have lacked manpower, which has handicapped them particularly with regard to repair work, in which competition has been more severe during 1950 that at any time since the war.

Altogether 42 vessels, aggregating some 55,000 tons gross, were delivered from Norwegian yards in 1950. This is perhaps a little less than the amount delivered in 1949 and may be accounted for by the fact that so many large tankers, seven altogether, were begun during 1950. As to individual yards, Fredriksstad mek. Verksted again tops the list, having delivered four vessels of some 17,000 tons d.w., and second is Akers mek. Verksted with two vessels, totalling some 10,000 tons d.w., one of them being of 8,200 tons and the largest vessel delivered by a Norwegian yard during 1950. As at November 1 last, Norwegian owners had ordered but not yet taken delivery of 207 vessels, aggregating 1,374,600 tons gross. Of these contracts 100, or practically half the number, had been concluded with Norwegian yards, but the tonnage of these vessels amounts only to 322,200 tons gross, compared with 50 vessels of 524,700 tons ordered from British yards and 41 vessels of 422,100 from Swedish yards.

DUTCH SHIPPING AND SHIPBUILDING

(*Continued from page 74*)

tons d.w. motor tanker for Brazil and a 18,500 tons d.w. motor tanker for A.S. Bill, Oslo (Nederlandsche Dok en Scheepsbouw Mij., Amsterdam).

Orders for small coasters are on the decline, the coaster fleet already being thought to be too large. Moreover, owing to the rising costs many small owners who used to have one ship, which they captained themselves, can no longer afford new ships.

On September 30, 1950, foreign orders included six ships of 70,899 tons gross for the Argentine, three of 3,900 tons for Belgium, one of 400 for Brazil, three of 2,200 for the U.K., two of 8,797 tons for Finland, 16 of 58,425 tons for France, two of 4,640 tons for Israel, three of 13,918 tons for Yugoslavia, four of 41,858 tons for Norway, two of 1,750 tons for Portugal, and two of 2,000 tons for Russia. These figures show that Dutch yards, on the average, have work for about two years, although some yards urgently need orders in 1951. They also show that the Dutch industry largely depends on foreign owners, especially for tankers.

Besides building ships the Dutch shipbuilding industry is busily engaged on the construction of dredging plant for which it is famous and of which it is the largest producer in the world. Only two other countries are building this plant, and since the U.S.A. is doing next to nothing for export, Scotland remains the only serious competitor. Several yards are building dredging plant, but most of it is confined to six yards which have formed a combination for export Industriele Handelscombinatie "Holland", consisting of Conrad & Stork Hijsch, Haarlem; Gusto v.h. A. F. Smulders, Schiedam; Scheepsbouwwerf en Machinefabriek "De Klop," Sliedrecht; J. & K. Smit's Sheepswerven, Kinderdijk; L. Smit & Zoons, Kinderdijk, and Verschure & Co., Amsterdam. Since the war this combination has exported to a value of many million guilders and it received many orders in 1951. A short while ago the 175th foreign order was accepted. Most important clients are France, Belgium, Argentina, Brazil, Turkey, India, Indonesia and Russia. Relations with countries behind the Iron Curtain are very good, many orders being completed for Russia and Poland.

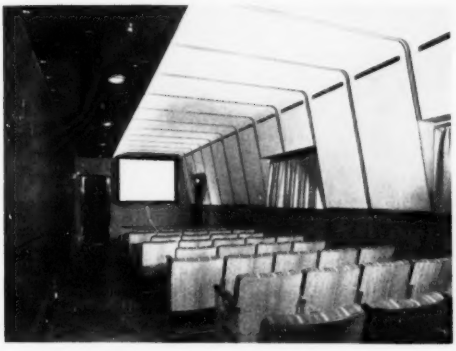
ITALIAN-BUILT PASSENGER AND CARGO LINER FOR ARGENTINA

Since the end of the war the Argentine has been engaged in an extensive shipbuilding programme to provide a merchant marine sufficient to meet all her own shipping requirements. Orders for considerable tonnage have been placed in Italy, and one example of the fine modern vessels being built in that country for the Argentine is the *Rio de la Plata*. A twin-screw passenger and cargo liner of about 10,500 tons gross, the *Rio de la Plata* was built by Soc. Anon. Ansaldo, Genoa-Sestri, for service with the Flota Mercante del Estado. She carries a deadweight of 8,500 tons on a mean draught of 26 ft., and has dimensions of 547 ft. 3 in. length o.a., 510 ft. b.p., 65 ft. 8 in. breadth moulded, 39 ft. 9 in. depth moulded to shelter deck and 31 ft. 1 in. depth moulded to main deck. There is accommodation for one class only, 116 passengers being carried in first-class cabins. Views of the public rooms are reproduced below, and they indicate the excellent taste imparted throughout all accommodation. As can be seen from the pictures, extensive use has been made of glass to give the impression of added spaciousness. The propelling machinery, supplied by Stabilimento Grandi Motori Fiat, of Turin, comprises two 10-cylinder two-stroke double-acting diesel engines which develop a total of 13,000 b.h.p. when cruising and provide the vessel with a speed of 18 knots. On fully loaded trials a speed of 20 knots was attained with the engines developing 18,400 b.h.p. A picture of the *Rio de la Plata* appeared on page 354 in THE SHIPPING WORLD of April 12, 1950

Hall on promenade deck

Large glass wall separating the swimming pool deck from the lounge bar

Dining room



Cinema

View of hall on bridge deck

View of the dancing space

BRITISH SHIPS FROM BRITISH SHIPYARDS

DELIVERIES OF PASSENGER LINERS AND OCEAN-GOING DRY-CARGO VESSELS

TABLE I.—BRITISH OCEAN-GOING CARGO LINERS DELIVERED IN 1950

Owners	Name	Tonnage gross	Tonnage d.w.	Passengers	Speed	Machinery	Total h.p.	Builders	Notes
Asiatic S.N. Co.	*Ranee*	5,790	8,100	—	14	Tr.-exp. steam	—	Lithgows	
Blue Star Line	*Adelaide Star*	12,000	14,000	12	18	Tw. 6-cyl. Doxford diesels	14,700	John Brown	
do.	*Dunedin Star*	7,322	11,200	—	16	Double-reduction turbine	8,000	Alex. Stephen	
do.	*English Star*	9,996	14,000	12	17	Tw. 5-cyl. Doxford diesels	—	Fairfield	487,920 cu. ft.; 100,000 cu. general
do.	*Tasmania Star*	11,950	13,500	12	16	Double-reduction turbine	—	Cammell Laird	482,308 cu. ft.; 360,000 cu. general
do.	*Scottish Star*	12,000	14,000	—	17	Tw. 5-cyl. Doxford diesels	—	Fairfield	
British India S.N. Co.	*Chantala*	7,551	9,600	12	15	6-cyl. Doxford diesel	6,800	Barclay, Curle	Accom. for 31 cadets; 13,000 cu. ft.
do. do.	*Chindwara*	7,525	9,600	12	15	6-cyl. Doxford diesel	6,800	Swan, Hunter	
do. do.	*Chilka*	7,132	9,614	12	15	6-cyl. Doxford diesel	6,800	Swan, Hunter	12,780 cu. ft.
do. do.	*Daressa*	5,180	4,260	86	14.5	5-cyl. Doxford diesel	4,200	Barclay, Curle	Also unberthed passengers; 10,900 cu. ft.
do. do.	*Mombasa*	2,213	1,364	24	12	Tw.-scr. 5-cyl. British Polar diesels	1,600	Henry Robb	89,255 cu. bale; 150 deck passengers
do. do.	*Olinda*	5,424	9,000	—	12	Tr.-exp. steam and exhaust turbine	—	Wm. Denny	490,000 cu. general
do. do.	*Ordia*	5,449	9,000	—	12	Tr.-exp. steam and exhaust turbine	—	Wm. Denny	490,000 cu. general
do. do.	*Santhia*	8,908	8,700	93	15	Tw.-scr. 4-cyl. Doxford diesels	6,800	Barclay, Curle	Also 68 intermediate and 1,700 unberthed passengers; 427,000 cu., of which 16,400 cu. ft.
T. & J. Brocklebank	*Manaar*	8,996	11,000	6	15	Double-reduction turbine	7,720	Wm. Hamilton	28,000 cu. ft.
China Navigation Co.	*Chungking*	9,398	8,910	48	15	6-cyl. Doxford diesel	6,600	Scotts' S.B.	Also 320 steerage and 265 deck passengers; 425,746 cu. ft. bale, 10,200 cu. ft.
do. do.	*Fuming*	3,464	3,110	—	12	Tr.-exp. steam	2,475	Wm. Gray	
Clan Line	*Clan Sinclair*	8,386	11,000	12	16	Double-reduction turbine	9,400	Greenock Dockyard	
Cunard S.S. Co.	*Assyria*	8,683	11,500	—	16	Double-reduction turbine	9,750	Swan, Hunter	463,994 cu. grain; 120,57 cu. ft.
Elderman Lines:—									
City Line	*City of Manchester*	7,585	10,750	—	15	Single-reduction turbine	7,200	J. L. Thompson	
Hall Line	*City of Birkenhead*	7,320	10,750	—	15	Single-reduction turbine	—	Cammell Laird	
do.	*City of Chicago*	7,622	10,800	12	15	Single-reduction turbine	7,200	Vickers-Armstrongs	
do.	*City of Ottawa*	7,622	10,800	12	15	Single-reduction turbine	7,200	Vickers-Armstrongs	
do.	*City of Philadelphia*	7,591	10,800	12	15	Single-reduction turbine	7,200	Furness S.B.	Delivered end Dec., 1949
do.	*City of Bedford*	7,340	10,750	—	14	Single-reduction turbine	5,500	Alex. Stephen	
Elderman & Papayanni	*Andalusian*	3,913	5,100	—	13	Tr.-exp. steam with exhaust turbine	3,700	Wm. Gray	
Elderman's Wilson	*Borodino*	3,206	1,955	56	13	Tr.-exp. steam with exhaust turbine	—	Ailsa S.B.	103,250 cu. ft.
Federal S.N. Co.	*Nottingham*	6,689	10,000	—	15	6-cyl. Doxford diesel	6,200	John Brown	304,500 cu. ft.; 195,000 cu. general
P. Henderson & Co.	*Kaladan*	4,916	8,950	—	13	3-cyl. Doxford diesel	3,000	Lithgows	
do. do.	*Kindat*	5,530	8,950	—	14	4-cyl. Doxford diesel	4,000	Lithgows	
do. do.	*Mataban*	5,809	10,000	12	14	Single-reduction turbine	—	Wm. Denny	
Alfred Holt & Co.	*Ascanius*	7,692	9,000	12	16	7-cyl. Harland-B. & W. diesel	—	Harland & Wolff	
do. do.	*Bellerophon*	7,707	9,000	12	16	7-cyl. Kincaid diesel	7,600	Caledon S.B.	
do. do.	*Hector*	10,125	11,250	30	18	Double-reduction turbine	14,000	Harland & Wolff	
do. do.	*Jason*	10,160	11,320	29	18	Double-reduction turbine	14,000	Swan, Hunter	124,800 cu. ft.
do. do.	*Patroclus*	10,109	11,250	31	18	Double-reduction turbine	14,000	Vickers-Armstrongs	691,250 cu. grain; 70,371 cu. ft.
do. do.	*Perseus*	10,109	11,250	31	18	Double-reduction turbine	14,000	Vickers-Armstrongs	691,250 cu. grain; 70,465 cu. ft.
do. do.	*Teiresias* (ex-*Silverelm*)	8,968	10,200	12	15	Double-reduction turbine	6,800	J. L. Thompson	
do. do.	*Teucer* (ex-*Silverlaurel*)	6,460	10,200	—	15	Double-reduction turbine	6,800	J. L. Thompson	
Indo-China S.N. Co.	*Eastern Queen*	8,644	8,800	—	17	Double-reduction turbine	—	Wm. Denny	
Johnston Warren Lines	*Sycamore*	3,342	4,600	—	15	4-cyl. Doxford diesel	3,300	Burntisland	
James Nourse, Ltd.	*Betwa*	6,724	10,000	—	13	3-cyl. Doxford diesel	2,550	Chas. Connell	
do. do.	*Ganges*	6,724	10,000	—	13	3-cyl. Doxford diesel	2,550	Chas. Connell	
Moss Hutchison Line	*Kypros*	3,499	4,900	—	13.5	4-cyl. Doxford diesel	2,950	Wm. Pickersgill	280,000 cu. general; 5,965 cu. ft.
Pacific S.N. Co.	*Flamenco*	8,494	11,000	12	16.5	Double-reduction turbine	9,400	Greenock Dockyard	598,130 cu. ft. grain
do.	*Kenuta*	8,494	11,000	12	16.5	Double-reduction turbine	9,400	Greenock Dockyard	598,130 cu. ft. grain
Prince Line	*Cingalese Prince*	8,827	10,500	12	15	6-cyl. Doxford diesel	6,600	Vickers-Armstrongs	
do.	*Eastern Prince*	8,827	10,500	12	15	6-cyl. Doxford diesel	6,600	Vickers-Armstrongs	
do.	*Afric*	3,364	4,725	12	14	4-cyl. Doxford diesel	3,500	Burntisland	278,080 cu. grain; mechanical ventilation
Ropner Line	*Dalelby*	5,171	7,846	12	12.5	4-cyl. Doxford diesel	3,000	Sir James Laing	516,000 cu. grain
do.	*Deerpool*	5,169	7,846	12	12.5	4-cyl. Doxford diesel	3,000	Sir James Laing	469,400 cu. bale
Shaw, Savill	*Runic*	13,587	13,500	—	17	Tw.-scr. single-reduction turbines	14,000	Harland & Wolff	508,090 cu. ft.
do.	*Suevic*	13,587	13,500	—	17	Tw.-scr. single-reduction turbines	14,000	Harland & Wolff	512,780 cu. ft.
Strick Line	*Goulston*	8,430	11,000	12	14	Tr.-exp. steam and exhaust turbine	6,100	J. Readhead	3,164 cu. ft.
do.	*Muriston*	8,408	11,000	12	14	Tr.-exp. steam and exhaust turbine	6,100	J. Readhead	13,762 cu. ft.
do.	*Tangiston*	7,383	10,000	12	12	Tr.-exp. steam and exhaust turbine	3,750	J. Readhead	12,638 cu. ft.
Watts Watts	*Wendover*	5,664	8,590	—	15	5-cyl. Doxford diesel	6,250	Caledon S.B.	589,020 cu. grain
do.	*Woodford*	5,664	8,590	—	15	5-cyl. Doxford diesel	6,250	Caledon S.B.	589,020 cu. grain
Westcott & Laurance	*Maltasian*	3,910	5,300	—	13	Tr.-exp. steam and exhaust turbine	3,700	Wm. Gray	

TABLE II.—BRITISH OCEAN-GOING TRAMP SHIPS DELIVERED IN 1950

Owners	Name	Tonnage gross	Tonnage d.w.	Speed	Machinery	Total h.p.	Builders	Notes
Australind Steam Shipping Co.	*Ajana*	5,850	9,500	14	6-cyl. Harland-B. & W. diesel	—	Wm. Hamilton	
Burries Markes, Ltd.	*La Sierra*	6,189	9,360	14	5-cyl. Doxford diesel	5,850	Wm. Doxford	572,000 cu. grain
Hain S.S. Co.	*Treglisson*	5,970	9,600	13	Tr.-exp. steam	3,950	Wm. Hamilton	560,000 cu. grain
do.	*Treloske*	5,386	9,260	13	4-cyl. Doxford diesel	3,830	Wm. Doxford	574,000 cu. grain
Medomsley Steam Shipping Co.	*Langleeclyde*	6,642	10,550	15	6-cyl. Doxford diesel	6,800	Blythswood	12 passengers
Moor Line, Ltd.	*Dartmoor*	5,324	9,140	13	4-cyl. Doxford diesel	3,830	Wm. Doxford	597,000 cu. grain
do.	*Exmoor*	5,324	9,140	13	4-cyl. Doxford diesel	3,830	Wm. Doxford	
Sir W. Reardon Smith & Sons	*Queen City*	5,593	8,820	12	4-cyl. Doxford diesel	3,390	Wm. Doxford	
do. do. do.	*King City*	5,593	8,820	12	4-cyl. Doxford diesel	3,390	Wm. Doxford	
West Hartlepool S.N. Co.	*Palamhall*	5,507	9,220	13	4-cyl. Doxford diesel	3,830	Wm. Doxford	

BRITISH SHIPBUILDING AND SHIPREPAIRING

REVIEWS FROM THE DISTRICTS

From THE SHIPPING WORLD'S Own Correspondents

SCOTLAND

THE MOST outstanding feature of the Scottish year has been the volume of new tonnage booked, and the large proportion of tankers in these new orders. The end of the year saw seven new tankers ordered in one weekend—surely a record Christmas gift to the workers on Clydeside. If tonnage was less than in 1949, it was only so by a narrow margin. And perhaps the most happy feature of all has been the lack of any industrial disputes. Such minor problems as have arisen have been settled quickly, killing the old legend of "Red Clydeside" and demonstrating that the yards are fully settled down to the job in hand.

The total Scottish output was 502,748 tons (excluding three *Daring* class destroyers), as against 533,965 tons in 1949 and 440,803 tons in 1948. The Clyde yards launched 435,486 tons, against their 1949 total of 445,876 tons. Other Scottish centres launched 67,262 tons, against 88,089 tons in 1949. The drop was due, therefore, chiefly to decreased activity at Aberdeen, Dundee and on the Forth.

At the end of the year some 850,000 tons of new shipping was building or on order at the Clyde yards. Of that a considerably greater amount than 50 per cent (the national average) was for tanker tonnage. While no positive data can be given, there are probably more than 50 tankers in that figure, and of these at least 28 are for foreign or overseas owners. The majority of Clyde yards are fully booked and most of the larger units have substantial tanker commitments on hand. Norway remains the most important foreign buyer, but most of the maritime countries are represented in the order books. Here, as elsewhere, orders were received from owners who had not formerly operated in the tanker trade. Owners who were obviously holding back for a decline in prices also came in, and have helped to swell the present order book position.

Analysis of the output shows that Lithgows, Ltd., again head the Clyde list with nine vessels of 71,610 tons to their credit. John Brown & Co., Ltd., follow (as last year) with five ships of 57,928 tons. Scotts' Shipbuilding & Engineering Co., Ltd., climbs into third place with four vessels of 41,578 tons, and fourth in order is William Hamilton & Co., Ltd., with four ships of 34,670 tons. This firm was the fourth largest producer a year ago, too.

The river also launched three *Daring* class destroyers over the year, one each from John Brown, Stephen, and Fairfield. These do not appear in the figures, and due credit must be given for this important work. Particular interest attaches to the use of welded construction in these ships, the maximum adoption of this technique having been a distinctive feature of the work. Apart from this small amount of naval work, the output consisted entirely of commercial construction. The chief ship of the year was the New Zealand Shipping Company's *Ruahine*, launched by John Brown & Co., Ltd., in December. This 18,500-tons gross passenger and cargo liner continues the fine traditions of Clydebank, and marks the continuity of confidence between owner and builder in that it is the 22nd ship to be built for these owners by John Brown's.

On the debit side, some of the smaller Clyde yards are suffering from the current concentration on tanker tonnage. They would welcome a greater volume of inquiries and orders for the smaller specialised types of vessels. If work of this type were to come forward in similar proportion, the overall picture would be completely satisfactory. There is no doubt that rising prices are acting as an encouragement to place orders. Experiments at quoting fixed prices and deliveries, tried out by some yards in 1950, have largely been abandoned. Raw materials are too difficult and the overall position too uncertain to permit the return to this desired policy.

Activity at Scottish Outports

Construction prospects in other Scottish areas are equally satisfactory. In Leith, Henry Robb, Ltd., have announced contracts sufficient to keep them busy into 1952. Their 7,244-tons gross total for 1950 is below their 1949 figure, but not materially so. The Burntisland Shipbuilding Co., Ltd., continues on its programme with considerable success. Although launchings were down to 23,822 tons gross, the completion programme showed an increase of 13,146 tons over the 1949 figure at 34,375 tons gross. Colliers and cargo liners continue to figure strongly in the firm's list. They, too, have a full order book, and can anticipate work for a long period ahead. Grangemouth Dockyard Co., Ltd., launched four ships of 5,312 tons gross and have 10 contracts on hand.

Aberdeen had a less active year, with Hall, Russell & Co., Ltd., down to 6,748 tons gross as against 17,892 tons gross in 1949, when they were particularly busy. John Lewis & Sons, Ltd., launched approximately the same tonnage, at 4,973 tons, and concentrated mainly on trawlers. One of the most interesting contracts on hand is the quick freeze trawler for Chr. Salvesen & Company. Alexander Hall & Co., Ltd., also had a steady year with an output of 2,590 tons gross of trawlers and tugs. Dundee made a considerable contribution of 19,503 tons, although this is slightly lower than in the previous year. The Caledon Shipbuilding & Engineering Co., Ltd., has been developing other activities, extending its facilities, and has a large amount of new work on hand. Dundee, like the other centres, can anticipate a sound year ahead.

The marine engineering industry on the Clyde shared in the exceptional activity, and will also share in the work now in hand. Most of the principal firms report record order books which will carry them well into 1952. Clyde shops produced 527,000 h.p., as against 466,000 h.p. a year ago. Fairfield's lead in this, chiefly by virtue of the powerful engines of H.M.S. *Delight*, which are included in their figure of 73,600 h.p. British Polar Engines, Ltd., made a notable contribution through increased production facilities last year.

One of the most important aspects of construction in Scotland in 1950 was the wide range of ancillary and allied work carried on by many of the big yards. In the beginning of the year a certain amount of customer resistance was apparent, and this indicated the need for alternative work. Obviously that could not be achieved overnight, and much of the spade work had been done as far back as 1945, if not earlier. Most builders are consolidating their positions by

TABLE III.—BRITISH PASSENGER LINERS DELIVERED IN 1950

Owners	Name	Tonnage gross	Tonnage d.w.	Passengers 1st	Passengers 2nd	Passengers 3rd	Passengers Total	Speed	Screws	Machinery	Total h.p.	Builders	Notes
British Railways ...	*Amsterdam*	5,092	950	321	236	—	557	21½	2	Single-reduction turbines	12,500	John Brown	45,800 cu. ft. general
do. ...	*Brighton*	2,875	490	—	—	—	1,450 (deck)	24	2	Single-reduction turbines	18,500	Wm. Denny	
Canadian Pacific ...	*Empress of Scotland**	26,313	10,200	458	205	—	663	20½	2	Single-reduction turbines	30,000	Fairfield	320,000 cu. ft. general
Cunard	*Scythia**	19,930	10,171	248	630	—	878	16	2	Double-reduction turbines	—	John Brown	43,829 cu. rf.
N. of Scotland & Orkney & Shetland S.N. Co.	*St. Ninian*	2,280	945	160	124	284	628	15	2	British Polar diesels	2,560	Caledon S.B.	Also 344 deck passengers
P. & O.	*Chusan*	24,215	10,000	475	551	—	1,026	22	2	Geared turbines	42,500	Vickers-Armstrongs	409,690 cu. general; 22,505 cu. rf.
Union-Castle Line ...	*Arundel Castle**	19,216	14,147	168	371	—	539	20	2	Single-reduction turbines	—	Harland & Wolff	144,893 cu. rf.
do. ...	*Bloemfontein Castle*	18,400	10,500	One class only			739	20	2	Harland-B. & W. 8-cyl. diesels	—	Harland & Wolff	180,600 cu. rf.
do. ...	*Carnarvon Castle**	20,142	14,700	216	401	—	617	20	2	H.&W. 10-cyl. diesels	—	Harland & Wolff	207,759 cu. rf.

* Reconversion.

developing alternative work. These activities include lifeboat building, engine construction by yards not formerly tackling this work (as at Lewis's at Aberdeen), hydro-electric plant construction on the Clyde, gas turbine and allied work at Clydebank, structural steel construction work and a wide range of alternative heavy engineering projects. The need for these as an insurance policy has faded in view of the immense volume of main work now being handled by the yards, but in no instance is the trend regretted. The volume of non-shipbuilding work produced during the year by firms in the industry has not been recorded, but it forms a most impressive contribution to Scottish industrial output.

Training schemes have been continued steadily and successfully. Apprentices have been coming forward steadily, and concentration, as in adult labour, has been on quality. The situation at the start of 1951 is therefore as satisfactory from the viewpoint of skilled labour as it is from the aspect of available work.

NORTH-EAST COAST

SHIPYARDS on the North-East Coast have had an excellent year, with the prospects for 1951 much pleasanter than were those of twelve months ago. A postwar record in launching output was achieved, with a total of 96 ships totalling 548,560 tons gross. Compared with 1949 six fewer ships were constructed, but the building of large capacity tankers materially assisted in the increased tonnage figure. The individual figures of the five centres, with the 1949 totals shown for comparative purposes, are given below.

NUMBERS AND GROSS TONNAGES OF SHIPS LAUNCHED

	1949		1950	
	Ships	Tonnage	Ships	Tonnage
Blyth	5	17,609	4	15,299
Tyne	31	202,253	32	200,002
Wear	37	181,544	34	192,176
Hartlepools	7	28,269	7	35,813
Tees	22	104,615	19	105,270
Total	102	534,290	96	548,560

The major contributions to the output came from Tyne and Wear yards, and the demand for new tanker tonnage can be gathered by the Tyne's launching of 8 tankers of 94,750 tons gross, with the Wear yards launching 11 tankers of 83,240 tons gross. A feature of the output, however, is the contribution of the Tees, and it is worth noting that the output of 105,270 tons gross is nearly twice the 1947 total of 56,758 tons gross. This can be traced to new tanker construction. Export tonnage showed a fairly substantial decline as compared with 1949, and with a falling away of orders from foreign sources the decline may be further emphasised this year. Export tonnage in 1950 was 25 ships of 172,552 tons gross, as against the 1949 totals of 39 vessels of 223,911 tons gross.

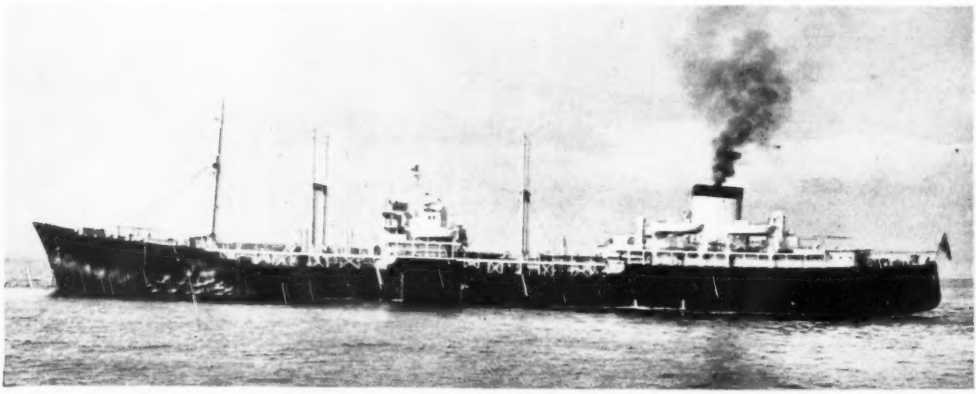
It has been a year full of interest, with the flow of new contracts for tonnage during the last six months of the year a matter of much satisfaction. A pleasing feature, too, is that the demand for dry cargo ships is reflected in the increased number of orders for this type of vessel. Tyne yards have booked orders totalling three times the 1949 figure, while Wear yards received contracts for more than four times the previous year's total. This ensures full employment at most yards until 1952, and with prospects of more orders coming along, apart from orders received and not announced, the outlook is most encouraging. Apart from merchant shipping there is also the possibility of work reaching the area in connection with the naval programme of rearmament and the refitting of vessels. The year was singularly free from serious labour troubles, and shiprepairing, following the completion of the big reconversion programme, has maintained a fairly steady level. An interesting point has been the success of local firms in gaining orders against fierce Continental competition, while a type of job that created much employment was the large number of coal to oil conversion orders. There has been no lack of enterprise on the part of shipbuilders and shiprepairers to modernise yards and plant, and the introduction of large scale prefabrication has become an accepted pattern at most yards. Enterprise has also been shown in meeting the demand for larger dry dock accommodation on the Tyne and Wear to cope with the giant tankers now under construction, and work is already in hand on these projects at the Sunderland yard of T. W. Greenwell & Co., Ltd., and at the North Shields yard of Smith's Dock Co., Ltd. It is expected that the new dry dock at Sunderland, which will take tankers up to 28,000 tons d.w., will be finished about the middle of 1952.

Largest Tyne-built Ships

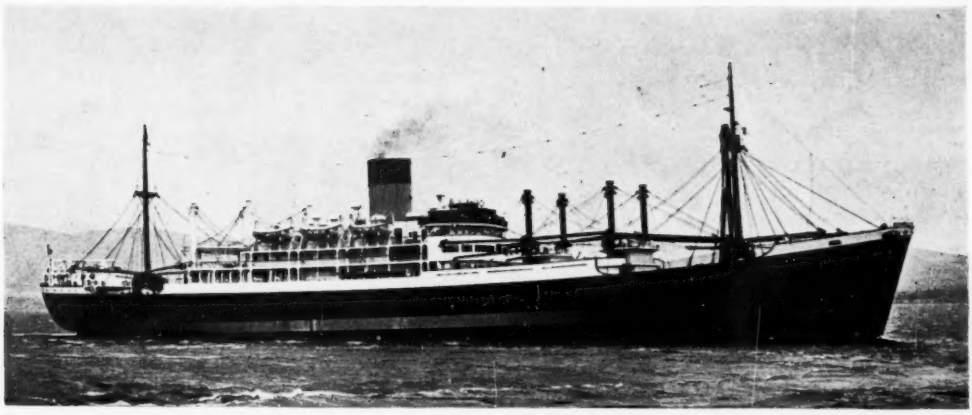
The two biggest ships launched on the Tyne were both tankers, the first being the 18,620 tons gross *Velutina*, built by Swan, Hunter & Wigham Richardson, Ltd., for the Anglo-Saxon Petroleum Co., Ltd. When the vessel was launched it held the record of being the biggest tanker ever built in the country, and a noteworthy feature has been the quick fitting out of the ship, the launching month being April with trials held in July. The second giant tanker was the Norwegian 24,500-tons deadweight *Credo*, the biggest tanker ever built at the yard of Vickers-Armstrongs, Ltd., Walker-on-Tyne, and the first tanker to be built by the builders since 1928. Two big liners featured in the year's launching output, and the French-owned 16,100-tons gross *Provence* is the biggest vessel ever built by Swan, Hunter & Wigham Richardson, Ltd., at their Neptune yard. The other big liner was the Furness, Withy cruising ship *Ocean Monarch*, of 14,500 tons gross, launched by Vickers-Armstrongs, Ltd. This fine one-class vessel is due for trials in the early spring. The Athel Line had three tankers, the *Athelmonarch*, *Athelbeach* and *Atheldutchess*, launched by R. & W. Hawthorne, Leslie & Co., Ltd., Hebburn-on-Tyne, and the last named is due for delivery in January to complete the order for four vessels.

Deliveries from the Tyne

The Tyne delivery output fell below the 1949 total, the 1950 figures being 23 ocean-going ships of 206,505 tons gross, as against 28 vessels of 236,135 tons for the previous year. Tanker tonnage accounted for eight ships of 84,925 tons gross, as against eight tankers of 70,525 tons gross in 1949, while export tonnage showed a reduction as compared with



The "Punta Medanos," a twin-screw turbine-driven tanker of 8,500 tons d.w., built for the Argentine Navy by Swan, Hunter & Wigham Richardson, Ltd., Wallsend-on-Tyne



Passenger and cargo liner "Hector," 10,125 tons gross, built by Harland & Wolff, Ltd., Belfast, for Alfred Holt & Company

1949, the 1950 figures being four vessels of 30,120 tons gross as against five ships of 20,900 tons gross. The biggest ship handed over was the 18,620-tons gross tanker *Velutina*, and other big tankers commissioned were the *Athelking* (11,200 tons gross), the *Athelmonarch* (11,200 tons gross), *British Splendour* (10,985 tons gross) and the *British Union* (8,700 tons gross). The river's largest liner was the 11,500-tons gross *Jason*, with the *Patroclus*, of 10,000 tons gross, coming next. The year ended with seven ships fitting out on the river with a total tonnage of 84,785 tons gross, and with several of these due for delivery in the early months of the year the 1951 delivery output should get off to a good start.

Large Tankers on the Wear

The outstanding event of the year on the Wear was the launch of the 15,250-tons gross Norwegian tanker *Hoegh Arrow* at the yard of Sir James Laing & Sons, Ltd., the launch attracting thousands of spectators. The *Hoegh Arrow* is the biggest vessel ever built at Sunderland, and a sister ship, the *Hoegh Eagle*, is now under construction on the vacated berth. Another big tanker from the same yard to enter the water was the 11,500-tons gross *Hollywood* for John I. Jacobs & Co., Ltd.

There were ten colliers launched during the year, eight being to the order of the British Electricity Authority, Wm. Pickersgill & Sons, Ltd., constructed five of these, with S. P. Austin & Son, Ltd., building the remaining three. There was a drop in export tonnage, with seven ships of 35,730 tons gross as against the 1949 figures of eleven vessels of 69,540 tons gross. Included in the export construction were the two Portuguese liners *India* and *Timor*, each of 7,000 tons gross, built by Bartram & Sons, Ltd. On the delivery side the biggest ship handed over was the 15,250-tons gross tanker *Hoegh Arrow* and other big tankers to leave the river were the *British Reliance* (11,000 tons gross), *Thorshavn* (12,000 tons gross) and the *Marietta*, of 9,960 tons gross. Among cargo liners handed over were *Hulda Maersk* (5,700 tons gross), *City of Manchester* (7,500 tons gross), *La Sierra* (6,330 tons gross) and the *Teiresias* and *Teucer*, each of 7,500 tons gross. There was a big drop in export ships, there being six vessels of 35,930 tons gross in 1950 compared with 16 ships of 88,360 tons gross the previous year. This decline was due to fewer orders for cargo ships.

One of the most interesting jobs started during 1950 is that the of the 15,226-tons gross tanker building by John Crown & Sons, Ltd., for Olsen & Ueelstad, Oslo. For the first time in shipbuilding history a tanker will be built in two sections, with the after section being constructed first. It will then be towed to the Tyne for engine installation by the North Eastern Marine Engineering Co. (1938), Ltd., Wallsend-on-Tyne. The fore part will also be towed to the Tyne and joined to the after section in the dry dock of the Middle Docks & Engineering Co., Ltd. It is expected that the joining of the two halves will take about two months.

There was some disappointment at the poor allocation of Reserve Fleet vessels for refitting to Tyne yards, only two destroyers and two minesweepers being allotted. Work is proceeding on the fitting out of the aircraft carrier *Albion*, and the destroyer *Daring*, but more naval work would be appreciated on the river.

MERSEYSIDE AND BARROW

IN COMMON with other shipyards in the United Kingdom and Northern Ireland the past year was marked by continuing activity at the Birkenhead yard of Cammell Laird & Co., Ltd., where a postwar record was achieved in the number and the aggregate tonnage of ships launched. This comprised eight ships totalling 112,500 tons gross, compared with seven ships of 56,371 tons gross in the previous year and eight ships totalling 64,785 tons gross in 1948.

From the national point of view the most outstanding launch last year was that of H.M. aircraft carrier *Ark Royal*, an event which took place on May 3, when the Queen performed the naming ceremony. The *Ark Royal* is now completing in the firm's adjacent fitting-out basin. So far as merchant ship launches were concerned tanker tonnage predominated. These comprised the largest tanker so far built on Merseyside, the *Valsella*, of 28,000 tons deadweight, for the Anglo-Saxon Petroleum Co., Ltd.; the *General San Martin* and *General Pueyrredon*, each of 12,500 tons gross, for the Yacimientos Petroliferos Fiscales, of Buenos Aires, the *British Trust*, 8,650 tons gross, for the British Tanker Co., Ltd., and the coastal tanker *Athelbrook* (800 tons gross) for the Athel Line, Ltd. Other launches were the cargo liner *Tasmania Star* (11,950 tons gross) for the Blue Star Line and the passenger steamer *Mona's Isle* (2,500 tons gross) for the Isle of Man Steam Packet Co., Ltd.

Five ships, aggregating 47,612 tons, were completed during the year and are now in commission. They are the passenger cargo liner *City of Birkenhead*, for Ellerman Lines, the cargo liner *Tasmania Star* and three tankers, the *Athelbrook*, *British Trust* and *Valsella*. Orders for four new ships were placed during the year as follows: Cargo liner of 10,000 tons d.w. for Lamport & Holt Line, Ltd.; passenger-cargo liner, 6,750 tons d.w., for the Booth Steamship Co., Ltd., passenger-cargo liner, 8,900 tons d.w., Manchester Liners, Ltd., and a tanker of 18,000 tons d.w., the order for which was placed by S. G. Embiricos, London, on behalf of foreign clients.

As a result Cammell Laird's have begun the year with a total of 12 merchant ships, aggregating 187,000 tons gross, on order or in course of construction, in addition to the completion of the aircraft carrier *Ark Royal*. At the beginning of 1950 the total was 11 merchant ships of 164,000 tons gross. The company also has in hand conversion of the aircraft carrier *Campania* into an exhibition ship for the forthcoming Festival of Britain. The shiprepairing section of the company has also been busily engaged during the year, one notable job being the reconstruction of the fore-part and bridge structure of the cargo liner *Fulani*, which was extensively damaged as the result of fire while berthed in dock.

It would be pleasant to record a similar state of cheerful activity in so far as Merseyside shiprepairing in general is concerned. Unfortunately, the past year has been the most difficult of any since the end of the war, marked by a complete absence of major long-term contracts. In consequence there was a decline in employment which caused considerable anxiety. After the seasonal liner survey and overhaul programme was completed in April, there was a long period

when repair work was on a limited scale and by the end of June there were 2,444 men unemployed. The announcement that under the Admiralty programme seven naval vessels were to be refitted on Merseyside brought a certain amount of relief and at a meeting held on October 18 Captain I. A. P. MacIntyre, R.N., Admiralty Regional Officer (North-west), said that the immediate prospects for continuity of employment in the shiprepairing industry on Merseyside seemed quite reasonable. The refit of four of the naval vessels was in hand and the arrival of nine liners for passenger certificate surveys between October and April (1951) would assist the position.

Concern over the decline in the shiprepairing industry had in the meantime led to the establishment in February of a Working Party under the chairmanship of Sir Lawrie Edwards, president of the Shipbuilding Employers' Federation, to go into the whole question. The setting up of this fact-finding committee was the outcome of a meeting held in Liverpool on December 16, 1949, attended by Mr. Harold Wilson, President of the Board of Trade, representatives of the shiprepairing and shipping industries, the Mersey Docks & Harbour Board, trade unions and other interested organisations. The terms of reference of the Working Party were:

"To consider whether in the light of prospective demand, additional berths, cranes and drydocks are required for shiprepairing on Merseyside, and, if so, whether they could be provided without interference with the working of the commercial port facilities of the area."

The findings of the committee were published in a report, which was unanimous, issued on December 20 as a White Paper. The main conclusions reached were that in the light of prospective demand (based on the estimated peacetime load):—

(1) Additional berths are not required for shiprepairing on Merseyside.

(2) No additional drydocks are required but improved services (electric power, compressed air, fresh and salt water services, warping capstans and telephones) would lead to greater expedition and efficiency of ship repairs at the existing public drydocks.

(3) (a) Additional travelling cranes are necessary to enable the best use to be made of the existing public drydocks. (b) More favourable consideration should be given to the needs of shiprepairing in the allocation of floating cranes.

The report also states in respect of shiprepairing that the Working Party had been assured by the Mersey Docks & Harbour Board that, insofar as lay-to berths were not required for the commercial uses of the port, the Board would continue to make them available for shiprepairing. As yet no comment in the report has been made by the port authority, but the first reactions among the trades unions concerned is that the recommendations are a step in the right direction. There was a certain amount of disappointment over the conclusion that no additional berths were necessary for shiprepairing, but it is felt that if the recommendations of the Working Party, particularly in regard to improved services and cranes, are put into effect they will go a long way towards improving facilities. This will mean that shiprepairers on Merseyside will be able to compete on more equal terms not only with shiprepairers in other parts of Britain but also on the Continent. It is on this more optimistic note that the shiprepairing industry has begun the new year.

Completion of the "Chusan"

North-west from Merseyside the Barrow shipyard of Vickers Armstrongs, Ltd., has just completed an unusually busy year devoted almost exclusively to big passenger liner tonnage. This has included the completion of the largest merchant ship commissioned in the world in 1950, the P. & O. liner *Chusan*, of 24,215 tons gross, and the launching of the largest passenger liner at present building in Britain, the Orient liner *Oronsay*, of about 28,000 tons gross. In addition the Barrow yard completed the 14,500-tons Argentine passenger liner *Eva Peron* and launched her sister ship, the *17 de Octubre*. Another outstanding launch of the year took place on December 12, when the *British Adventure*, the first of six tankers of 28,000 tons d.w. being built for the British Tanker Co., Ltd., was put into the water.

The *Chusan*, the biggest ship of the year, was commissioned last June. Ordered in May, 1946, the keel was laid in February, 1947, and the ship launched on June 28, 1949. The liner thus took 3 years and 4 months to complete at an estimated cost of £3,250,000. She has accommodation for 475 first-class and 551 tourist passengers, and carries a crew of 372. A feature of her construction was the installation of special stabilising gear. After being handed over to her owners, the *Chusan* made four short summer cruises from Southampton. In September she made a voyage to Bombay with a full complement of passengers and 2,500 tons of cargo and on November 7 began her first voyage in the P. & O. Line's Far Eastern service, for which she was specifically designed.

The launch of the Orient liner *Oronsay* took place on June 30. It was originally intended that she would begin her maiden voyage on March 14 next, but on October 28 she was damaged by fire while lying in her fitting-out berth and in consequence the date of her first sailing is now scheduled for May 16. The *Eva Peron*, the second of three passenger and cargo liners built since the war by Vickers-Armstrongs at Barrow for the service operated by the Dodero Line under the Argentine flag, was completed in April and left London on her maiden voyage to Buenos Aires on May 9. The first of the three ships, the *Presidente Peron*, was commissioned in July, 1948, and the third, the *17 de Octubre*, was launched on April 4 last. She was completed in October and sailed from Southampton on her first voyage on November 4.

New Contracts Placed at Barrow

During the year the Barrow yard benefited from the world demand for tanker tonnage. Contracts placed also included an order from Reynolds Jamaica Mines, Ltd., for a self-unloading ore carrier of 15,000 tons gross, which will be employed in transporting bauxite from Jamaica to ports in the United States. In October it was announced that the company had received an order for two tankers of 26,500 tons d.w. from the Standard Oil Company of New Jersey. These additional tanker orders, with the contracts for the two tankers of 31,000 tons d.w. placed at the end of 1949 by the North American Shipping & Trading Co., Ltd., which is associated with Mr. Stavros S. Niarchos, and the completion of the *British Adventure* (28,000 tons d.w.), will comprise the main activities of the Barrow yard during the present year.

NORTHERN IRELAND

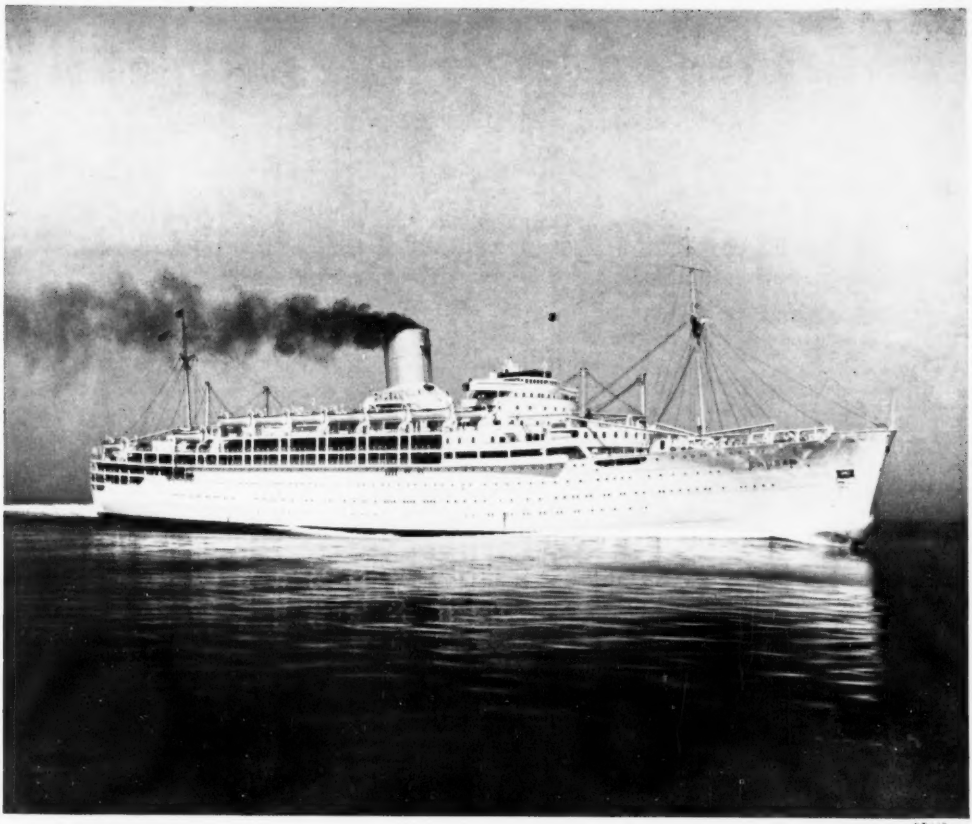
BY LAUNCHING fourteen ships of 158,340 tons gross, Harland & Wolff, Ltd., achieved an output in excess of 100,000 tons for the eleventh successive year. Of this total the yards at Belfast produced eleven ships of 131,720 tons and 93,220 i.h.p., which represents an increase of 34,367 tons over the previous year. In 1949, however, twelve ships were launched, so that generally the past year can be regarded as one in which postwar activity was well maintained and in which nearly all the building berths were almost continuously in commission.

The launching output consisted of two passenger and cargo liners, a refrigerated cargo ship, a whaling factory ship and seven oil tankers, this, allowing for the omission of first class passenger tonnage, was again fully representative of the principal types of ship usually constructed at Belfast. Probably the most outstanding of the series was the whaling factory ship, the *Juan Peron* (22,300 tons gross) for the Compania Argentina de Pesca. This vessel, still fitting out, is the largest of her kind in the world and from the engineering point of view is also of special interest by reason of her diesel propelling machinery. She is the third whaling factory ship to be built at the Queen's Island since the war.

Next in size, and of unusual note as the largest oil tanker so far launched by Harland & Wolff, was the *Verena* (28,000 tons d.w.). Launched in June, this ship was duly delivered to the Anglo-Saxon Petroleum Co., Ltd., in November and can be regarded as the forerunner of many large tankers of the future. Another of the same capacity for the British Tanker Co., Ltd., is now building. Only slightly smaller was the *Bolette*, the first of a series of oil tankers of 24,000 tons d.w. for Norwegian owners, in this case Fred Olsen & Co., Oslo. While the *Verena*, however, is fitted with geared turbines, the *Bolette*, completed at the end of the year, is propelled by one of the new Harland B. & W. opposed-piston eccentric-type diesel engines, the introduction of which was also one of the events of the year.

The total of seven tankers from Belfast, together with three from Govan, would appear to be the largest in the firm's history. The others launched on the Lagan were all of 12,000 tons d.w., four being for British owners and one for Norway. Three, the *British Explorer*, *British Prospector* and *British Surveyor*, completed the latest series for the British Tanker Co., Ltd., and a fourth was the *Laganfield*, for Hunting & Son, Ltd., Newcastle-on-Tyne, which was also finished late in December. The *Ringerd*, for Mr. Olav Ringdal, Oslo, launched early last month, was the only tanker not to be delivered before the end of the year.

Making only the third of the eleven ships launched in the past twelve months to be still fitting out at the end of the year is the *Ixion* (10,125 tons), the third Belfast-built ship



BT 120

T.S.S. CHUSAN...

Latest addition to the P. & O. fleet

The 24,000-ton T.S.S Chusan embodies the traditional skill of the Vickers-Armstrongs shipyards. The accommodation handsomely provides for the comfort of passengers and crew under tropical as well as temperate conditions. It is noteworthy that she is the first large passenger liner to be fitted with hydrofin automatic stabilisers.

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*Bahia	La Plata	Paris	*St. Vincent (CVI)
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Barbados	Madeira	*Port Said	Tangier
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AGENTS AT OTHER PRINCIPAL PORTS THROUGHOUT THE WORLD

of the new class designed for Alfred Holt's Australian service. With her speed and passenger and cargo accommodation, this steamship is a distinctive product in the current programme and is the sixth Blue Funnel liner of Harland & Wolff's postwar series. The fifth, also launched and delivered in 1950, was the motorship *Ascanius* (7,692 tons), which was also notable in that she was the first vessel from the port to have one of the new diesel engines previously referred to, which, burning heavier types of oil, has been a proven advance in service on earlier models. The remaining vessel was the refrigerated cargo steamship *Sucvic* (13,587 tons), the second of a pair for the Shaw Savill & Albion Co., Ltd. This firm has since placed orders for two passenger and cargo motorships of the *Delphic* class. Her sister ship, the *Runic*, was launched in 1949 and delivered early last year.

Liner Reconversions Completed

The liner reconversion programme, on which work had continued without interruption since the war, came to an end during the summer with the completion of the *Carnarvon Castle* and *Arundel Castle*, the last two ships of the Union-Castle fleet, all the principal units of which were restored at Belfast, together with various ships of the Royal Mail, Pacific Steam Navigation and P. & O. companies. To a much lesser degree, work of this kind is still in progress in the modernisation of the British Railways' cross-Channel passenger steamship *Duke of York*.

Other reconditioning and major overhaul contracts included the Port liner *Port Hobart*, in which a reduction of the passenger accommodation was carried out, the Andrew Weir motorship *Lossiebank*, and the Lamport & Holt cargo ship *Spenser* (ex-*Star of El Nil*). A normal amount of refit and repair work was also handled.

The fitting out of three new aircraft carriers for the Royal Navy was continued, and the first of these, the fleet carrier *Eagle*, is due to be commissioned early in the New Year. Work on board the smaller carriers *Centaur* and *Bulwark* was advanced.

At the start of 1950 there had been a longish period during which no additions were made to the order book. The prospect at that time was therefore one of a steady run-down in activity as the remaining contracts began to be undertaken. In February, however, a change came over the situation with the receipt of an order from the Union-Castle Mail Steam-Ship Co., Ltd., for two intermediate passenger and cargo liners of 17,000 tons, similar to the *Bloemfontein Castle*, which was delivered in March.

This was followed by the placing of a cargo liner for the Port Line, Ltd., the two ships for the Shaw Savill Line, mentioned earlier, and a series of other ships of cargo-liner type for different owners, which at the time of writing has brought the total number of new contracts officially announced to fifteen. Hints have been given that further tonnage has also been secured, so that the outlook for the next two years can be considered as most favourable. For this the impact of rearmament rather than any short-lived effort at offering fixed prices has been mainly responsible.

SOUTH COAST

DURING the opening weeks of 1950 shipbuilding and shiprepair establishments on the South Coast could be described as being busy. There were vessels on the stocks and fitting out, and there were a number in process of conversion, reconversion, refit, overhaul and repairs. It became apparent, however, on the completion of various jobs, that unless new contracts were forthcoming the activities of the yards would be severely curtailed and lead to serious unemployment among shipyard workers. This applied especially to the Hampshire district, in reference to which Professor Ford and Mr. Thomas, of the Department of Economics, University College, Southampton, stated in an industrial survey that they foresaw the possibility of an unemployment figure of 4,000 in the summer months. The situation was brought to the notice of Parliament by local Members, while the firms most concerned continued their efforts to obtain further work by keen and competitive tendering whenever an opportunity presented itself.

In the first week of January the troopship *Empire Orwell*, refitted by John I. Thornycroft & Co., Ltd., ran her full-power trials. The reconstruction of the 20,000-tons gross emigrant ship *New Australia*, formerly Furness, Withy's *Monarch of Bermuda*, was being pressed forward by Thornycroft's docks repair branch, and H.M.S. *Caprice* and the Pakistan Navy ship *Sind* (ex-*Godavari*) were being refitted at the firm's Woolston shipyard. The liner *Queen Elizabeth* was undergoing annual overhaul in King George V graving dock, and emergency machinery repairs were carried out on the Cunard liner *Samaria* at her berth in Southampton Docks. New construction at the time included the all-welded destroyer *Duchess*, and smaller craft, at Thornycrofts' Woolston shipyard, while J. Samuel White & Co., Ltd., at Cowes, were building the all-welded destroyer *Dainty* and two elevator pontoons for the Port of London Authority, to the order of Simon Handling Engineers, Ltd. On the shiprepairing side, White's were refitting H.M. ships *Liberty* and *Orwell*, the Royal Army Service Corps vessel *Squeers*, as well as several small craft for the Ministry of Supply. Camper & Nicholsons, Ltd., at Northam, and under construction the 250-tons gross benzine carrier *Kluang*, for the Anglo Saxon Petroleum Co.'s Singapore coastal service, and were refitting H.M.S. *Usk* for the Egyptian Government (renamed *Abukir*). John Morris & Co. (Gosport), Ltd., had in course of construction at their Fleetlands yard the twin-screw passenger and cargo motorship *Lady Wright*, building to the order of the Government of Gambia for service on the Gambia River, and several tunnel-stern vessels for export.

Harland & Wolff's Southampton Docks shiprepair branch began, at about this period, a comprehensive refit of H.M. transport *Empire Windrush*, and had, of course, their usual commitments, in respect of running repairs to vessels of the Cunard, Union-Castle, Royal Mail and United States Lines. The firm also carried out deck repairs and the installation of new winches for the salvage vessel *Help*. Philip & Son, Ltd., of Dartmouth, had about 12 vessels on the stocks, including two twin-screw motor ferries for Wallasey Corporation, a tug for W. H. J. Alexander, Ltd., and two tugs for the Bombay Port Trust. Silley Cox & Co., Ltd., Falmouth, had the troopship *Empire Trooper* for an extensive refit, and carried out a considerable amount of repair work to vessels of the British Tanker Co., Ltd., and others.

Improved Position on South Coast

By the end of last year the situation on the South Coast had greatly improved. Orders for new vessels had been received from the Admiralty, and for commercial work, and a number of minesweepers had been allocated to the Hampshire district, in which connection John I. Thornycroft's have been instructed to proceed as parent firm for a group of companies which are to build minesweepers for the Admiralty. The naval work was supplemented by a number of H.M. ships of the Reserve Fleet being sent to various yards for refit, and in this way additional contracts were received by J. Samuel White, Camper & Nicholsons, and Whites Shipyard (Southampton), Ltd., Itchen. J. Samuel White's had H.M.S. *Falmouth* at Cowes for conversion to an R.N.V.R. drill ship, entailing the substantial reconstruction of her interior and, at the same time, a refit of H.M.S. *Matchless* was put in hand. In August, H.M.S. *Dainty* was launched. At the ceremony, Admiral Sir Michael M. Denny stated that the *Dainty* would be the last of the heavy type of destroyer to be built by the Admiralty, the future trend being towards a lighter class designed to combat submarines and aircraft. On the commercial side White's have the 3,000-tons gross refrigerated fruit carrier for the Chargeurs Reunis, Paris, at an advanced stage of construction, and a number of smaller vessels, including a lightship for the Port of Calcutta, have gone forward.

Activity at Thornycroft's

Commercial work at Thornycroft's during the year included the hull of a 5,000-tons gross mail and passenger motor vessel, built to the order of Akers Mek. Verksted, Oslo, for Fred Olsen & Company, of Oslo. She was named the *Blenheim*, the launching ceremony being performed by Lady Hambro, wife of Sir Charles Hambro. The hull, which is to be completed and fitted with B. & W. diesel main engines, was towed to Oslo from Woolston a few days after her launch. An example of the wide range of work of which Thornycroft's Woolston shipyard is capable is a floating dock for the Peruvian Government, the construction of which began during the year. It is of the sectional pontoon type with a lifting power of 600 tons, with an overall length over pontoons of 172 ft. 11 in., an overall length over platforms of 194 ft., and breadth of 61 ft. 3 in. The machinery consists of two sets of main pumping engines, and a 10-kW diesel generator at 220 volts. The dock is to be towed out to its destination when completed.

Other work in hand at Woolston includes a twin-screw survey and buoyage vessel for the Mersey Docks & Harbour Board. She has a length of 172 ft. overall, a breadth moulded of 35 ft., and a mean draught of 11 ft. She is to be fitted with two Thornycroft triple-expansion engines of 1,300 i.h.p. at 188 r.p.m. in normal service. Steam will be supplied by two single-ended Scotch boilers. South Coast shipyards are likley to be busy during the present year, at any rate, and the misgivings which obtained at the opening of 1950 seem to have been dispelled.

BRITISH SHIPBUILDING RETURNS FOR 1950

MERCHANT SHIP LAUNCH RETURNS FOR SHIPYARDS IN GREAT BRITAIN AND NORTHERN IRELAND

In the following tables "s.s." signifies steamship, and "m.v." motor vessel

THE CLYDE

Name of Ship	Owners	Type of Engines	Gross Tonnage
AILSA SHIPBUILDING CO., LTD., TROON			
BORODINO	Ellerman's Wilson Line	s.s.	3,200
CAMERTON	Bristol Sand & Gravel Co.	s.s.	890
HUDSON SOUND	Hudson S.S. Co.	s.s.	2,577
			6,667
ARDROSSAN DOCKYARD, LTD., ARDROSSAN			
EL KERYM	Halal Shipping Co.	m.v.	2,066
LOCH CARRON	David MacBrayne, Ltd.	m.v.	700
			2,766
BARCLAY, CURLE & CO., LTD., GLASGOW			
DARESSA	British India S.N. Co.	m.v.	5,515
SANTHIA	do.	m.v.	9,755
KENYA	do.	s. turbine	15,000
			30,270
BLYTHSWOOD SHIPBUILDING CO., LTD., SCOTSTOUN			
LANGLEECLYDE	Medomsley S.S. Co.	m.v.	8,925
MANCHESTER MERCHANT	Manchester Liners	s. turbine	7,850
REGENT CARIBOU	Bowring S.S. Co.	m.v.	12,300
			29,075
GEORGE BROWN & CO. (MARINE), LTD., GREENOCK			
LENAHAN	Trans-Arabian Pipe Line Co., San Francisco	m.v.	22
CHANDLER	do. do.	m.v.	22
PORTLAND	Dansk Cement Central, Copenhagen	m.v.	1,300
			1,344
JOHN BROWN & CO., LTD., CLYDEBANK			
AMSTERDAM	British Railways	s. turbine	5,092
OTTAWA	Unitas, Inc., Panama	m.v.	13,099
ADELAIDE STAR	Blue Star Line	m.v.	12,037
SINGAPORE	P. & O. S.N. Co.	s. turbine	9,200
RUAHINE	New Zealand Shipping Co.	m.v.	18,500
			57,928
CHAS. CONNELL & CO., LTD., SCOTSTOUN			
GANGES	James Nourse, Ltd.	m.v.	6,724
BETWA	do.	m.v.	6,722
TARTAR	Wilh. Wilhelmsen, Oslo	m.v.	11,103
			24,549
WM. DENNY & BROS., LTD., DUMBARTON			
EASTERN QUEEN	Indo-China S.N. Co.	s.s.	8,644
ORDIA	British India S.N. Co.	s.s.	5,449
CITY OF KARACHI	Ellerman Lines	s. turbine	7,350
ROYAL IRIS	Corporation of Wallasey	d.-elect.	1,000
ABERDARE	United Africa Co.	s.s.	349
TRENCHARD	do.	s.s.	842
QUORRA	do.	s.s.	349
JAMES PINNOCK	do.	s.s.	349
RICHARD LANDER	do.	m.v.	260
Small craft	Various	—	1,100
			25,692
FAIRFIELD SHIPBUILDING & ENGINEERING CO., LTD., GOVAN			
SCOTTISH STAR	Blue Star Line	m.v.	11,000
PRINCESS OF NANAIMO	Canadian Pacific Rly. Co.	s. turbine	6,000
			17,000
FERGUSON BROS. (PORT GLASGOW), LTD., PORT GLASGOW			
F. T. BATES	South African Govt.	s.s.	787
A. M. CAMPBELL	do.	s.s.	787
FARAHMAND	British Tanker Co.	s.s.	450
			2,024
FLEMING & FERGUSON, LTD., PAISLEY			
P.S. I	Govt. of Trinidad	—	245
P.S. II	do.	—	245
2 dipper dredgers	Royal Irrigation Dept. of Bangkok	d-elect.	320
			810
GREENOCK DOCKYARD CO., LTD., GREENOCK			
KENUTA	Pacific S.N. Co.	s. turbine	8,500
FLAMENCO	do.	s. turbine	8,500
CLAN SUTHERLAND	Clan Line	s. turbine	8,450
			25,450
WM. HAMILTON & CO., LTD., PORT GLASGOW			
MANAAR	T. & J. Brocklebank	s. turbine	8,996
ERLING BORTHEN	H. Borthen & Co., Oslo	m.v.	9,074
DEA BROVIG	Th. Brovig, Farsund	m.v.	11,000
AJANA	Australind S.S. Co.	m.v.	5,600
			34,670
HARLAND & WOLFF, LTD., GOVAN			
BRITISH CONSUL	British Tanker Co.	m.v.	8,655
BRATSBERG	A.S Borgestad, Borgestad	m.v.	8,255
BINTA	Per Gjerding, Bergen	m.v.	8,162
			25,072
A. & J. INGLIS, LTD., GLASGOW			
CARNARVON	Australian Whaling Co.	s.s.	598
KVINT	Falkland Shipowners, Ltd.	s.s.	590
3 unattended light-vessels	Northern Lighthouse Board	—	270
			1,458
JAMES LAMONT & CO., LTD., PORT GLASGOW			
BENIN	Elder Dempster Lines	s.s.	2,483
			2,483
LITHGOWS, LTD., PORT GLASGOW			
JALVALLABH	Scindia S.N. Co., Bombay	s. turbine	6,950
JALRAJENDRA	do.	s. turbine	6,950
BRITISH PEER	British Tanker Co.	m.v.	8,680
POWELL	Hector Tankers	m.v.	12,220
WAZIRISTAN	Common Bros.	m.v.	9,200
BRITISH PREMIER	British Tanker Co.	m.v.	8,680
HEKTORIA	A.S Hektor, Tonsberg	m.v.	9,030
SHERBORNE	Basra S.S. Co.	m.v.	4,950
KALADAN	British & Burmese S.N. Co.	m.v.	4,950
			71,610
LOBNITZ & CO., LTD., RENFREW			
SIR FON	British Electricity Authority	m.v.	810
SPRINGWOOD	do.	m.v.	810
T.C.C. HOPPER No. 5	Tees Conservancy Commissioners	s.s.	750
T.C.C. HOPPER No. 6	do.	s.s.	750
			3,120
SCOTT & SONS, BOWLING			
HAIL	Kuwait Oil Co.	s.s.	462
CALM	Canterbury S.S. Co.	m.v.	787
FIRUZMAND	Petroleum S.S. Co.	s.s.	462
			1,711
SCOTTS' SHIPBUILDING & ENG. CO., LTD., GREENOCK			
BUSEN ROLLO	Star Whaling Co.	m.v.	11,392
CHUNGKING	China Nav. Co.	m.v.	9,398
CHANGCHOW	do.	m.v.	9,398
LORD CANNING	Northam S.S. Co.	m.v.	11,390
			41,578

Name of Ship	Owners	Type of Engines	Gross Tonnage
WM. SIMONS & CO., LTD., RENFREW			
M.O.P. 227-C	Argentine Govt.	d.-elect.	2,749
			2,749
ALEXANDER STEPHEN & SONS, LTD., LINTHOUSE			
KAWAROA	Union S.S. Co. of New Zealand	m.v.	3,550
DUNEDIN STAR	Blue Star Line	s. turbine	7,300
CITY OF BEDFORD	Ellerman Lines	s. turbine	7,350
CITY OF SINGAPORE	do.	s. turbine	7,350
			25,550
YARROW & CO., LTD., SCOTSTOUN			
SARAYU	High Commissioner for India	s.s.	660
GOMATI	do. do.	s.s.	660
ORINOCO	Cia. Anon. de Nav., Caracas	m.v.	320
APURE	do. do.	m.v.	320
			*1,960

* Displacement tonnage.

SCOTTISH OUTPORTS

Name of Ship	Owners	Type of Engines	Gross Tonnage
BURNTISLAND SHIPBUILDING CO., LTD., BURNTISLAND			
MINSTER	Stephenson Clarke, Ltd.	m.v.	3,194
ALIOTH	Van Nievelt, Goudriaan & Co.'s Stoomv. Maats., Rotterdam	m.v.	5,675
FRIESLAND	Scheepv. - en - Steenkolen Maats., Rotterdam	m.v.	2,788
AFRIC	Prince Line	m.v.	3,364
WATERLAND	Shipping & Coal Co.	m.v.	2,837
EMSWORTH	Stephenson Clarke, Ltd.	m.v.	1,800
EGYPTIAN PRINCE	Prince Line	m.v.	3,364
LONDON	Dundee, Perth & London Shipping Co.	m.v.	800
			23,822
CALEDON SHIPBUILDING & ENG. CO., LTD., DUNDEE			
BELLEROPHON	Alfred Holt & Co.	m.v.	7,707
PLADDA	Clyde Shipping Co.	m.v.	854
ST. NINIAN	North of Scotland & Orkney & Shetland S.N. Co.	m.v.	2,242
BILLITON	Stoomv. Maats. Nederland, Amsterdam	s. turbine	8,700
			19,503
GRANGEMOUTH DOCKYARD CO., LTD., GRANGEMOUTH			
ACCUM	North Thames Gas Board	m.v.	1,771
NAMPULA	Cia. Colonial de Nav., Lisbon	s.s.	2,024
MADALENA	Empresa Insulana de Nav., Lisbon	m.v.	1,156
KANTJIL	Anglo-Saxon Petroleum Co.	m.v.	361
			5,312
ALEXANDER HALL & CO., LTD., ABERDEEN			
LOCH INVER	Loch Fishing Co. of Hull	s.s.	670
VIKINGUR	Icelandic Govt.	s.s.	730
HOFRUNGUR	do.	s.s.	730
AYSGARTH	Rea Towing Co.	s.s.	230
APPLEGARTH	do.	s.s.	230
			2,590
HALL, RUSSELL & CO., LTD., ABERDEEN			
BAROK	A.S Jelolinjen, Oslo	m.v.	1,029
HERO	Bruusgaard Kiosteruds Skibs., Drammen	s.s.	1,838
HYDRA	do. do.	s.s.	1,838
HREFNA	Icelandic Govt.	s.s.	681
ANDVARI	do.	s.s.	681
DROFN	do.	s.s.	681
			6,748
HERD & MACKENZIE, BUCKIE & FINDOCHTY			
COPIOUS	Messrs. Mackay	m.v.	45
			45
JOHN LEWIS & SONS, LTD., ABERDEEN			
BOSTON FURY	Boston Deep Sea Fishing & Ice Co.	s.s.	773
LANARKBROOK	Williamstown Shipping Co.	s.s.	982
AVONRIVER	North Star S.F. Co.	s.s.	421
RED HACKLE	Iago S.T. Co.	s.s.	674
MANI	Icelandic Govt.	s.s.	720
			3,570

Name of Ship	Owners	Type of Engines	Gross Tonnage
HENRY ROBB, LTD., LEITH			
MTWARA	British India S.N. Co.	m.v.	2,550
KAWATIRI	Union S.S. Co. of New Zealand	m.v.	2,485
SWIFT	General S.N. Co.	m.v.	758
HIRONDELLE	do.	m.v.	758
M.S.C. PUMA	Manchester Ship Canal Co.	m.v.	154
JEAN INGELOW	Boston Corporation	m.v.	149
7 lighters	Shipped abroad	—	320
			7,174

NORTH-EAST COAST

Name of Ship	Owners	Type of Engines	Gross Tonnage
S. P. AUSTIN & SON, LTD., SUNDERLAND			
POLDEN	British Electricity Authority	s.s.	1,362
BODMIN MOOR	do.	s.s.	1,362
BRENT KNOLL	do.	s.s.	1,362
WYCHWOOD	Wm. France, Fenwick & Co.	s.s.	2,506
ARDINGLY	Stephenson Clarke, Ltd.	m.v.	1,450
			8,042
BARTRAM & SONS, LTD., SUNDERLAND			
INDIA	Cia. Nacional de Nav., Lisbon	m.v.	7,200
TIMOR	do.	m.v.	7,200
KIELDRECHT	Phs. Van Ommeren, Rotterdam	m.v.	6,354
			20,754
BLYTH DRY DOCKS & SHIPBUILDING CO., LTD., BLYTH			
JARASLAW DABROWSKI	Polish-British S.S. Co., Gdynia	s.s.	3,100
ROSA MAERSK	A. P. Moller, Copenhagen	m.v.	8,223
			11,323
CLELANDS (SUCCESSORS), LTD., WALLSEND			
BOWSTAR	F. Bowles & Sons	m.v.	560
S. A. WILKNER	Northern Gas Board	m.v.	88
5 barges	Indian owners	—	2,750
4 barges	British owners	—	1,308
			4,706
JOHN CROWN & SONS, LTD., SUNDERLAND			
TANEA	Anglo-Saxon Petroleum Co.	m.v.	3,060
PORTSMOUTH	Stephenson Clarke, Ltd.	m.v.	1,805
			4,865
WM. DOXFORD & SONS, LTD., SUNDERLAND			
KING CITY	Sir Wm. Reardon Smith & Sons	m.v.	5,593
QUEEN CITY	do. do.	m.v.	5,593
BRITISH DEFENDER	British Tanker Co.	m.v.	6,138
BRITISH DIPLOMAT	do.	m.v.	6,155
BRITISH BUILDER	do.	m.v.	8,704
BRITISH CRAFTSMAN	do.	m.v.	8,704
ASTRONOMER	T. & J. Harrison	m.v.	8,150
			49,037
FURNESS SHIPBUILDING CO., LTD., HAVERTON HILL-ON-TEES			
H. M. WRANGELL	H. M. Wrangell & Co., Haugesund	m.v.	16,027
LONDON PRIDE	London & Overseas Freighters	m.v.	10,776
LONDON ENTERPRISE	do.	m.v.	10,776
SATURNUS	Rederi A B Saturnus, Stockholm	m.v.	10,700
MAGWA	Afran Transport Co., Pittsburgh	m.v.	16,050
SAN SALVADOR	Eagle Oil & Shipping Co.	turbo-elect.	10,802
			75,131
WM. GRAY & CO., LTD., WEST HARTLEPOOL			
ALTAIR	Van Nievelt, Goudriaan & Co's Stoomv., Rotterdam	m.v.	6,410
ATLANTIC DUCHESS	S. G. Livanos, Panama	m.v.	8,799
SEAWALL	Matapan Shipping Co.	s.s.	5,850
ANDALUSIAN	Ellerman Lines	s.s.	3,913
MALTASIAN	do.	s.s.	3,913
FUNING	China Nav. Co.	s.s.	3,464
FENGNING	do.	s.s.	3,464
			35,813

Name of Ship	Owners	Type of Engines	Gross Tonnage
R. & W. HAWTHORN, LESLIE & CO., LTD., HEBBURN-ON-TYNE			
ATHELMONARCH	Athel Line	m.v.	11,182
PROSPECTOR	Pan-Ore S.S. Co., Panama	m.v.	6,658
ATHELBEACH	Athel Line	m.v.	7,533
ATHELDUCHESS	do.	m.v.	9,090
PORT ADELAIDE	Port Line	m.v.	8,030
			42,493
SIR JAMES LAING & SONS, LTD., SUNDERLAND			
DEERPOOL	Sir R. Ropner & Co.	m.v.	5,169
HOEGH ARROW	Leif Hoegh & Co., Oslo	m.v.	15,082
HOLLYWOOD	John I. Jacobs & Co.	m.v.	11,525
BRITISH BIRCH	British Tanker Co.	m.v.	8,582
			40,358
WM. PICKERSGILL & SONS, LTD., SUNDERLAND			
CLIFF QUAY	British Electricity Authority	s.s.	3,357
BARFORD	do. do.	s.s.	3,357
LORD CITRINE	do. do.	s.s.	3,357
SIR ARCHIBALD PAGE	do. do.	s.s.	3,357
CAPT. J. M. DONALDSON	do. do.	s.s.	3,357
CAPITAINE LOUIS MALBERT	Union Industrielle et Maritime, Paris	s.s.	4,220
			21,005
JOHN READHEAD & SONS, LTD., SOUTH SHIELDS			
MURISTAN	Strick Line	s.s.	8,407
			8,407
SHORT BROS., LTD., SUNDERLAND			
VICTORIA	A. G. Pappadakis, Piraeus	m.v.	5,750
CALLISTO	Hudig & Veder, Rotterdam	m.v.	5,900
			11,650
SMITH'S DOCK CO., LTD., SOUTH BANK-ON-TEES			
KOS 46	A.S Kosmos, Sandefjord	s.s.	446
KOS 47	do. do.	s.s.	446
SOUTHERN ACTOR	Sevilla Whaling Co.	s.s.	439
SOUTHERN ANGLER	South Georgia Co.	s.s.	439
SOUTHERN ARCHER	do. do.	s.s.	439
SOUTHERN AUTHOR	do. do.	s.s.	439
GYASS	A.S Ornen, Sandefjord	s.s.	448
THORBRIS	Bryde & Dahls Hvalfang., Sandefjord	s.s.	448
PINGVIN	A.S Ornen, Sandefjord	s.s.	448
C. A. LARSEN	Cia. Argentina de Pesca, Buenos Aires	s.s.	438
LIMATULA	Anglo-Saxon Petroleum Co.	m.v.	6,476
LUMEN	Lustrous S.S. Co.	m.v.	10,146
ATHELSULTAN	Athel Line	m.v.	9,087
			30,139
SWAN, HUNTER, & WIGHAM RICHARDSON, LTD., WALLSEND AND WALKER-ON-TYNE			
ASSYRA	Cunard S.S. Co.	s. turbine	8,683
PUNTA MEDANOS	Agentine Govt.	s. turbine	7,905
VELUTINA	Anglo-Saxon Petroleum Co.	s. turbine	18,619
CHILKA	British India S.N. Co.	m.v.	7,132
PROVENCE	Soc. Gen. de Transports Maritimes a Vapeur, Marseilles	s. turbine	16,100
BRITISH SPLENDOUR	British Tanker Co.	m.v.	11,233
BRITISH SPORTSMAN	do.	m.v.	11,233
PATRICIA	Rederi A.B Svenska Lloyd, Gothenburg	s. turbine	7,700
			88,605
JOSEPH L. THOMPSON & SONS, LTD., SUNDERLAND			
GYROTOMA	Anglo-Saxon Petroleum Co.	s.s.	5,930
TEIRESIAS	Alfred Holt & Co.	s. turbine	8,968
TEUCER	do.	s. turbine	8,968
BRITISH NAVIGATOR	British Tanker Co.	m.v.	6,300
BRITISH ROVER	do.	m.v.	6,300
			36,466
VICKERS-ARMSTRONGS, LTD., WA..KER-ON-TYNE			
CITY OF OTTAWA	Ellerman Lines	s. turbine	7,622
CINGALESE PRINCE	Prince Line	m.v.	8,827
EASTERN PRINCE	do.	m.v.	8,827
OCEAN MONARCH	Furness, Withy & Co.	s. turbine	13,000
CREDO	A.S Jensen's Rederi, fl. Arendal	m.v.	16,840
			55,116

REST OF ENGLAND

Name of Ship	Owners	Type of Engines	Gross Tonnage
ALDOUS SUCCESSORS, LTD., BRIGHTLINGSEA			
Launch	Elders & Fyffes	m.v.	12
Two launches	do.	m.v.	56
Tunnel launch	Crown Agents for Colonies	m.v.	10
Two tunnel launches	Elders & Fyffes	m.v.	16
Six barges	do.	—	78
Double-ended ferry	Crown Agents for Colonies	m.v.	35
Four launches	Gray, Dawes	m.v.	40
Launch	do.	m.v.	27
Launch	British Tanker Co.	m.v.	7
Launch	Crown Agents for Colonies	m.v.	8
			289
CAMMELL LAIRD & CO., LTD., BIRKENHEAD			
BRITISH TRUST	British Tanker Co.	m.v.	8,650
TASMANIA STAR	Blue Star Line	s. turbine	11,950
ATHELBROOK	Athel Line	s.s.	800
VOLSELLA	Anglo-Saxon Petroleum Co.	s. turbine	18,600
GENERAL SAN MARTIN	Argentine Govt.	s. turbine	12,500
GENERAL PUEYRREDON	do.	s. turbine	12,500
MONA'S ISLE	Isle of Man S.P. Co.	s. turbine	2,500
			67,500
COCHRANE & SONS, LTD., SELBY			
NORTHERN SEA	Northern Trawlers	s.s.	692
NORTHERN ISLES	do. do.	s.s.	692
MILFORD KNIGHT	Milford S.T. Co.	m.v.	168
MILFORD COUNTESS	do. do.	m.v.	168
BRADMAN	Bunch S.F. Co.	s.s.	693
LORD LOVAT	Lord Line	s.s.	700
LORD TEDDER	do.	s.s.	700
LORD MOUNTEVANS	do.	s.s.	700
			4,513
COOK, WELTON & GEMMELL, LTD., BEVERLEY			
YARDLEY	Crampin S.F. Co.	s.s.	703
THOMAS TOMPION	H. Croft Baker & Sons	s.s.	590
ALAMEIN	Hull Merchants Amalgamated Trawlers	s.s.	661
ST. BRITWIN	Thos. Hamling & Co.	s.s.	742
ST. ALCUIN	do. do.	s.s.	742
PRINCESS ELIZABETH	St. Andrews S.F. Co.	s.s.	810
VAN DYCK	Motorvisscherij, N.V., Ostend	s.s.	599
KINGSTON ONYX	Kingston S.T. Co.	s.s.	794
KINGSTON TOPAZ	do. do.	s.s.	794
KINGSTON JADE	do. do.	s.s.	794
ST. KEVERNE	Thos. Hamling & Co.	s.s.	794
2 light floats	Humber Conservancy Board	—	50
			8,073
RICHARD DUNSTON, LTD., THORNE AND HESSLE			
JONDOR	—	m.v.	145
SEA MAID	—	—	20
6 tank barges	—	—	360
3 lighters	—	—	420
MAURICIA	—	m.v.	40
P.G. 2	—	—	75
POEM 21	—	—	105
2 coal barges	—	—	220
RANBY	—	m.v.	52
Tug	—	m.v.	20
FLANAGAN	London & Rochester Trading Co.	m.v.	100
4 swim barges	—	—	480
3 drifter-trawlers	—	m.v.	225
SOMME	Wm. H. Muller & Co. (London)	m.v.	430
TYBURN BROOK	—	m.v.	67
Diving barge	—	—	102
BUAYA	Anglo-Saxon Petroleum Co.	m.v.	350
			3,211
GOOLE SHIPBUILDING & REPAIRING CO., LTD., GOOLE			
INLAND	Axel Brostrom, Gothenburg	m.v.	1,123
SECURITY	F.T. Everard & Sons	m.v.	1,490
CHRISTINE	Union Industrielle & Maritime, Paris	m.v.	811
BEEDING	Stephenson Clarke, Ltd.	m.v.	1,142
CARIBCEMCO	Caribbean Cement Co., Jamaica	m.v.	375
			4,941
JOHN HARKER, LTD., KNOTTINGLEY			
YEWDALE H.	John Harker, Ltd.	m.v.	147
YAREDALE H.	do. do.	m.v.	147
NORTHDALE H.	do. do.	m.v.	172
ROSEDALE H.	do. do.	m.v.	259
RIBBLESDALE H.	do. do.	m.v.	259
SIDNEY BILLBROUGH	—	m.v.	50
			1,034

Name of Ship	Owners	Type of Engines	Gross Tonnage
CHARLES HILL & SONS, LTD., BRISTOL			
Tug	President of India	s.s.	250
6 lighters	Crown Agents for Colonies	—	400
REGENT WREN	Regent Oil Co.	m.v.	116
REGENT ROBIN	do. do.	m.v.	116
STEEP HOLM	Holms Sand & Gravel Co.	s.s.	531
Hopper barge	Docks & Inland Waterways Executive	—	100
Dredger pontoon	do. do. do.	—	30
			1,543
PHILIP & SON, LTD., DARTMOUTH			
BITTERN	Crown Agents for Colonies	m.v.	50
BUZZARD	do. do.	m.v.	50
KESTREL	do. do.	m.v.	50
MALLARD	do. do.	m.v.	50
WREN	do. do.	m.v.	50
4 hopper barges	do. do.	—	280
TRINCO	Union Lighterage Co.	m.v.	90
SUN XVIII	W. H. J. Alexander, Ltd.	m.v.	105
SIR THOMAS BROCKLEBANK	Mersey Docks & Harbour Board	m.v.	675
			1,400
JAMES POLLOCK, SONS & CO., LTD., FAVERSHAM			
SILVERDIAL	Silvertown Services, Ltd.	m.v.	92
SILVERBEAM	do. do.	m.v.	92
KWAMI	—	m.v.	13
KOFI	—	m.v.	13
Barge	—	m.v.	36
14 barges	—	—	1,297
			1,543
ROWHEDGE IRONWORKS CO., LTD., COLCHESTER			
Tunnel launch	—	m.v.	9
Bucket dredger	—	—	61
YORUBA	—	m.v.	45
Lifeboat	—	m.v.	—
AGRAB	—	m.v.	14
JARADA	—	m.v.	14
4 barges	—	—	700
5 gable hatch barges	—	—	475
2 landing pontoons	—	—	78
			*1,396

* Excluding tonnage of one vessel, tonnage of which is not known.

Name of Ship	Owners	Type of Engines	Gross Tonnage
SHARPNESS SHIPYARD, LTD., SHARPNESS			
HUNTDALE H.	John Harker, Ltd.	m.v.	105
			105
JOHN I. THORNYCROFT & CO., LTD., WOOLSTON			
BLENHEIM	Fred Olsen & Co.	m.v.	*5,000
Vehicle ferry	Crown Agents for Colonies	m.v.	89
JOCASTA	G. P. Pattinson	m.v.	19
ITHURIEL	Major Claud Halifax	—	8
JOLIETTE	F. W. Morgan	m.v.	8
SILVER LINING	P. A. Hellyer	m.v.	13
SEARCH	Crown Agents for Colonies	m.v.	17
			5,154

* The hull of this vessel was built by John I. Thornycroft & Co., Ltd., to the order of A/S Akers Mek. Verksted, Oslo, who are installing the machinery and completing the vessel.

Name of Ship	Owners	Type of Engines	Gross Tonnage
VICKERS-ARMSTRONGS, LTD., BARROW-IN-FURNESS			
17 DE OCTUBRE	Agentine Govt.	s. turbine	12,627
ORONSAY	Orient S.N. Co.	s. turbine	28,500
BRITISH ADVENTURE	British Tanker Co.	s. turbine	18,500
			59,627
J. SAMUEL WHITE & CO., LTD., COWES			
Lifeboat	Crown Agents for Colonies	m.v.	50
2 harbour launches	do. do.	m.v.	20
JOHN ANDERSON	Port of London Authority	—	316
DOUGLAS RITCHIE	do. do.	—	316
Lifeboat	R.N.L.I. Inst.	m.v.	9
2 lifeboats	do.	m.v.	52
2 lifeboats	do.	m.v.	42
			805
W. J. YARWOOD & SONS, LTD., NORTHWICH			
LUX	—	s.s.	198
Steel float	—	—	32
Crane barge	—	m.v.	25
THOMAS WELSH	—	m.v.	82
TUGWELL	—	m.v.	80
SULTAN	—	m.v.	80
ATHERTON	—	m.v.	31
BACUP	—	m.v.	31
MALEMBA	—	m.v.	173
TIMBIRA	—	m.v.	119
Barge	—	—	68
			919

NORTHERN IRELAND

Name of Ship	Owners	Type of Engines	Gross Tonnage
HARLAND & WOLFF, LTD., BELFAST			
SUEVIC	Shaw Savill & Albion Co.	s. turbine	13,587
BRITISH EXPLORER	British Tanker Co.	m.v.	8,644
JUAN PERON	Argentine Govt.	m.v.	22,300
BRITISH PROSPECTOR	British Tanker Co.	m.v.	8,655
ASCANIUS	Alfred Holt & Co.	m.v.	7,692
VERENA	Anglo-Saxon Petroleum Co.	s. turbine	18,662
IXION	Alfred Holt & Co.	s. turbine	10,125
BRITISH SURVEYOR	British Tanker Co.	m.v.	8,655
LAGANFIELD	Hunting & Son	m.v.	8,250
BOLETTE	Fred Olsen & Co., Oslo	m.v.	16,900
RINGERD	Olav Ringdal, Oslo	m.v.	8,250
Small craft	—	—	1,548
			133,268

SUMMARY

	1949	1950
Clyde	*443,317	*433,576
Scottish Outports	88,394	68,764
North-East Coast	535,316	543,910
Rest of England	141,747	162,053
Northern Ireland	97,353	133,268
	*1,306,127	*1,341,571

* Excluding 1,960 tons displacement of new buildings launched by Yarrow & Co., Ltd., in 1950, and 1,460 tons displacement launched in 1949.

English Electric in 1950

DURING 1950 The English Electric Co., Ltd., completed the contract for the machinery of the four diesel-electric dredgers built by W. Simons & Co., Ltd., and Fleming & Ferguson, Ltd., for the Ministry of Public Works, Argentina. Reports from the vessels now in Argentina indicate that they are giving every satisfaction under service conditions. Work was nearing completion at the end of the year on the propulsion machinery for the new Tay Ferry being constructed by the Caledon Shipbuilding & Engineering Co., Ltd., for the Dundee Harbour Authorities. The installation comprises two English Electric 6-cylinder pressure-charged type SRKM diesel engines, running at constant speed, driving Voith-Schneider propellers through reduction gearing.

Three 250 kW diesel generating sets for the *Dunedin Star*, recently completed by Alexander Stephen & Sons, Ltd., for the Blue Star Line, were delivered early in the year. The vessel left on her maiden voyage in October. Three similar sets have been delivered for installation in the Pacific Steam Navigation Company's liner *Cuzco*, being built by the Blyth Dry Docks & Shipbuilding Co., Ltd.

Fewer Orders for Japanese Shipyards

Japanese shipyards are getting fewer shipbuilding orders from overseas than they had anticipated and their efforts to reduce building costs may have to be abandoned. Shipbuilding contracts signed in 1950 show a 40 per cent drop from last year, according to a survey by the Japanese Ministry of Transport. Even some of the biggest yards have only just enough orders to enable them to continue in operation.

For the smaller yards, the situation is far more serious. Some yards have found that their cost position has changed to such an extent that they were unable to fulfil orders they had accepted. These firms will therefore have to content themselves with repair work. Some yards are getting special orders as a result of the war in Korea. Shipbuilders are now demanding that small and medium-sized yards should be permitted to increase their capital through recourse to U.S. Aid counterpart funds.

MARITIME NEWS IN BRIEF

From Correspondents at Home and Overseas

THE 18 years-old U.S. passenger liner *Ancon* is being dismantled in Genoa. The vessel was built as a cargo ship, with accommodation for about 40 passengers. In 1908 she was bought by the U.S. Government and employed carrying materials and equipment, engineers and workmen to Panama while the canal was being built. She was fitted out as a troopship during the Great War and afterwards continued in service as a passenger liner. She retired in 1939, but was soon brought out to become a troopship for the second time. Since the last war she has been operated on the Bernstein trans-Atlantic service as the *Continental*.

SIR THOMAS SPENCER, managing director of Standard Telephones & Cables, Ltd., has been elected chairman of the company. He succeeds the late Sir Frank Gill. He has been managing director of the company since 1932, and will continue in this capacity in addition to holding the office of chairman. Sir Thomas is also chairman of the International Marine Radio Co., Ltd.

MR. T. W. MIDDLEDITCH, manager of the Middlesbrough branch of Escombe, McGrath & Co., Ltd., shipbrokers, has retired after 43 years with the firm. Mr. M. Brand, president of the District Association of Chartered Shipbrokers, who has been with the firm for 33 years, has been appointed manager of the Middlesbrough branch.

MR. J. B. MACKAY has retired from his position of chief cashier of the Cunard Steam-Ship Co., Ltd. He has been succeeded by Mr. M. E. Fisk, who joined the White Star Line in 1913.

MR. H. K. STEIN, secretary and law officer of Shell-Mex & B.P., Ltd., retired on December 31 after thirty years' service with the company and its predecessors.

MR. PERCY W. DYER has been appointed a director of Sir R. Ropner & Co. (Management), Ltd. He has been in the service of the company for more than 40 years.

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MR. H. E. GORICK, general manager of the Chamber of Shipping, has begun his second year of office as a vice-president of the Chartered Institute of Secretaries. During the year the Institute celebrates its diamond jubilee. Sir Edward Wilshaw is president, having been elected to office for the second time after an interval of 20 years.

THE Minister of Transport has approved the appointment of Mr. A. E. H. Brown, chief docks manager, South Wales Docks, to be a member of the Transport Users' Consultative Committee for Wales in place of Mr. E. V. Swallow, who has resigned on his retirement from the services of the Docks & Inland Waterways Executive.

ROYAL MAIL LINES, LTD., have appointed Capt. G. A. Bannister as commodore of the company's fleet in succession to Capt. B. K. Berry. Since 1937 Capt. Bannister has commanded 14 Royal Mail vessels and is at present in command of the *Andes*.

THE RETIREMENT has been announced of Mr. Charles W. Roper, an operations manager in the United Kingdom of United States Lines. From 1934 to 1935 he was a director of Royal Mail Lines.

MR. S. J. LISTER has retired from the boards of the Cunard Steam-Ship Co., Ltd., and Cunard White Star, Ltd. He had been a director of Cunard for 21 years.

THE DEATH has occurred of Mr. W. Howard Horder, late joint manager of the Union-Castle Mail Steamship Co., Ltd., at the age of 82. He retired in December, 1934.

MR. PHILIP WILCOX and Mr. John Kirk Harrison have been elected directors of Thos. & Jas. Harrison, Ltd.

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THE Turkish States Lines have extended their cargo service between Turkish and Eastern Mediterranean ports to London. The schedule is 16 days from London to Istanbul with an intermediary call at Piraeus and Izmir. The motorship *Malatya* and three sister ships, *Kastamonu*, *Kars* and *Rize*, each of 5,000 tons d.w., will maintain the service.

CAPT. CHARLES FOX, commodore of the Orient Line, retired at the end of last year. He had commanded ships of the company's fleet since 1938. He was in command of the previous *Orcades* when she was sunk in 1942, and was also the first master of the present *Orcades*. He is succeeded by Capt. I. E. G. Goldsworthy, who commands the *Orcades* at present.

A PARAGRAPH in THE SHIPPING WORLD of December 27 referred to the refrigerating installation of two vessels under construction by Henry Robb, Ltd., for the General Steam Navigation Co., Ltd. The report referred to two vessels which have already been completed, and the G.S.N. has no vessels under construction or on order from the Leith yard.

COAL and coke shipments from the Tyne reached 9,475,000 tons in 1950, an increase of 647,000 tons on 1949, according to preliminary figures available. In 1938 the figure was 12,769,024 tons. Coal shipments from the Wear for 1950, at 3,022,000 tons, were the highest for 11 years.

THE American-West African Freight Conference has announced that it will increase its rates by approximately 10 per cent on all cargoes being carried to or from the United States and Canada as from February 1.

MR. GEORGE SMITH, secretary of Wm. H. Muller & Co. (London), Ltd., has been appointed a director of the company.

INCREASES in the prices of industrial, marine and motor lubricants, effective from January 1, have been announced by Shell-Mex & B.P., Ltd.

MR. JOHN FAWCETT has been elected a director of Matthews Wrightson & Co., Ltd.

MR. G. E. C. HOPE-JOHNSTONE, formerly general sales manager, has, as already announced in THE SHIPPING WORLD, been appointed sales director of the Regent Oil Co., Ltd. Mr. Hope-Johnstone has spent some thirty years in the oil industry, including a period in the oilfields in the British West Indies and the Middle East. For almost twenty years he has been connected with the distribution of Regent petroleum products. During the Second World War he served as a Lt.-Cmdr. (A) in the R.N.V.R.

MR. E. L. H. EMERY, a partner in Evan Thomas Radcliffe & Company, is a member of the Council of the Institute of Chartered Shipbrokers. Mr. Emery became a member of the Institute of Chartered Shipbrokers in 1926, and he was elected chairman of the Bristol Channel branch in 1950. He joined Evan Thomas Radcliffe & Company in 1918 and was appointed a partner in 1944, at the same time becoming a director of various shipping companies under their management. He is a member of the Baltic Exchange

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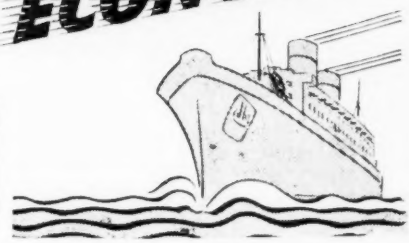

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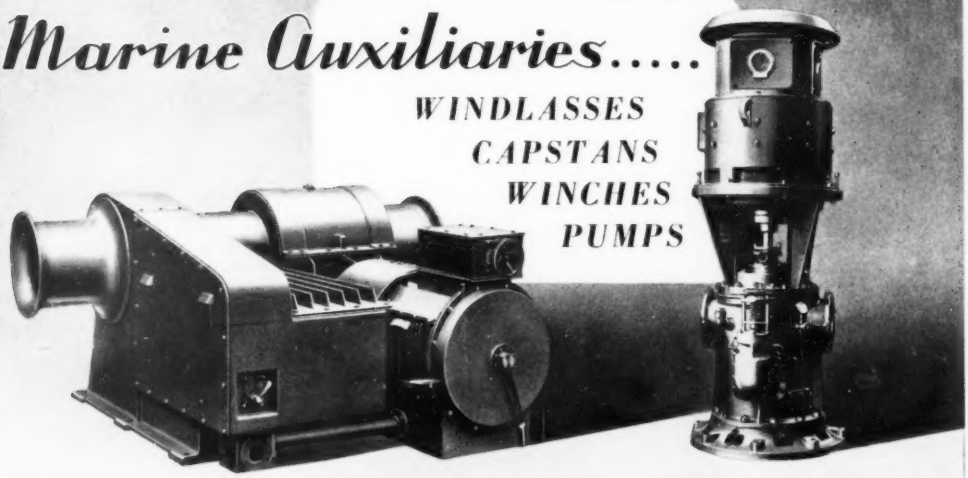

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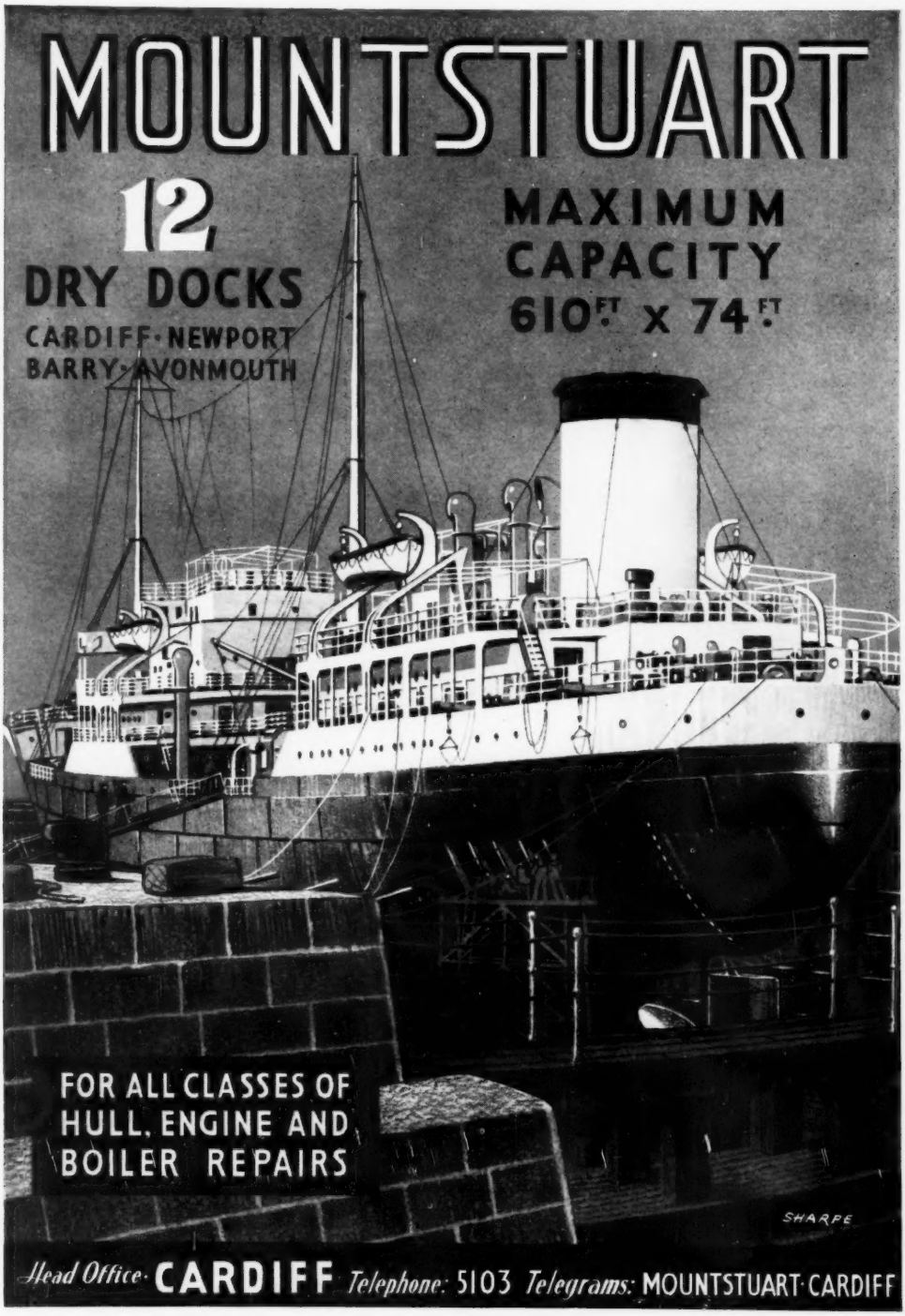
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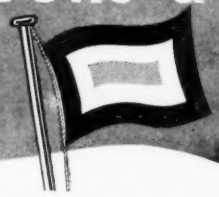

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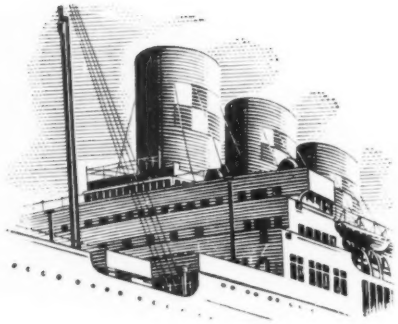

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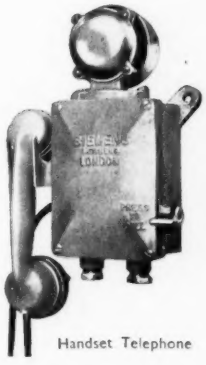

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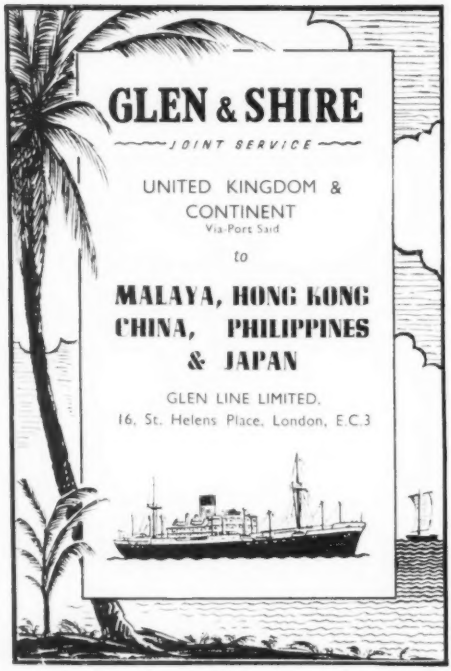

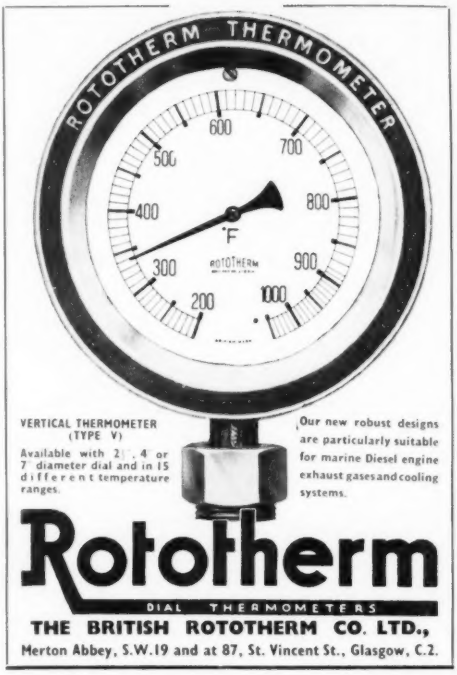

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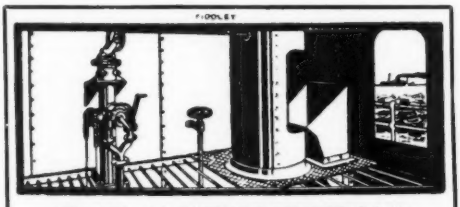

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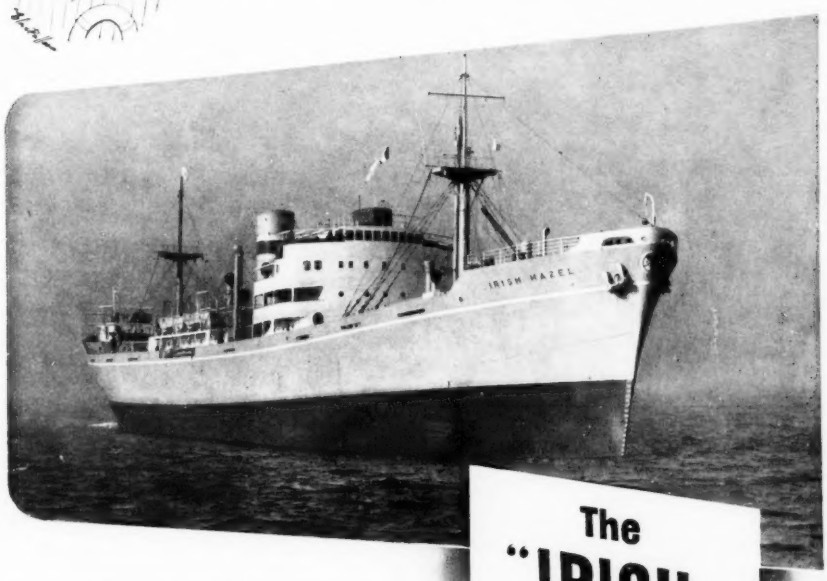

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